COMPUTERWORLD

TOP OF THE NEWS

Tomorrow will be a big day for Stratus Computer, Inc. The vendor is slated to announce two additions to its line of fault-tolerant equipment. Page 2.

□

Another old-line time-sharing firm is selling access to its telepprocessing network to fill the excess capacity left by the dwindling of the once-lucrative remote computing business. This time it's Geisco. Page 4.

□

Digital Equipment Corp. began getting it all together last week when it announced products that more closely integrate its personal computers into its office systems environments. It also unveiled a new microcomputer. Page 4.

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A bill that would make unauthorized access of medical records a federal crime gained endorsements during recent congressional hearings. Page 13.

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If you're looking for a communications carrier, the ways that long-distance telephone carriers measure the duration of calls might be a more important consideration than those carriers' actual rates, a study suggests. Page 25.

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Memories are made of this: a disk equipment, mass storage controller and cartridge storage system, Control Data Corp. last week out of its Cyber 170 Series 800 mainframes. Page 66.

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Success is expensive, Data General Corp.'s president warned shortly after the company reported that it had more than doubled profits for its second quarter. Page 96.

What's in a name?
How companies decide what to call themselves and their products/
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In Depth
The tyranny of words/
Follows Page 64

NAS counters IBM's X models by expanding its 8000 series

By Jeffry Beeler
CW West Coast Bureau

MOUNTAIN VIEW, Calif. — National Advanced Systems, Inc. last week countered the recent announcement of IBM's 3080 X mainframes by introducing five intermediate and large-scale processors that reportedly offer up to 10% greater performance than their Big Blue equivalents at a 6% lower price.

Three of the additions to NAS' processor line — the 8043, 8053 and 8063 — correspond to IBM's recently announced 3083 Models EX, BX and JX, respectively. Exceeding out last week's announcement were two other 8000 series newcomers: the 8023, which competes with IBM's 4381 Model Group 2, and the high-end 8083, which competes with the industry giant's 3081 Model KX.

Although neither the 8023 nor the 8083

has any 8000 series predecessors, the 8043, 8053 and 8063 will replace NAS' existing 8040, 8050 and 8060, respectively, according to the company's president, David Martin. Users of installed 8040s, 8050s and 8060s can upgrade their systems in the field at no cost and, in so doing, transform the machines into 8043s, 8053s and 8063s, respectively, Martin said.

In addition to providing 6% to 8% greater internal throughput than the 8000 series machines they replace, the 8043, 8053 and 8063 models boast a maintenance price tag that is approximately 11% lower, according to NAS' large systems marketing manager, Robert Ludwig.

Together, the maintenance price cuts and the introduction of the five 8000 series mainframes constitute the second half of NAS'

Survey uncovers ironic twist to spread of micros in Fortune 1,000 companies

By Jeffry Beeler
CW West Coast Bureau

LOS ANGELES — The suddenness with which personal computers burst on the scene caught many information systems managers by surprise and deprived them of a large measure of control, which they are now scrambling madly to regain.

Ironically, however, personal computers remain woefully underused within most big businesses — a problem with which MIS directors have only recently begun to come to grips.

These and similar conclusions highlight the results of a recent survey conducted by Management Science America, Inc., which asked Fortune 1,000 companies to describe

their current microcomputer installations and predict how their personal computer purchases will change in the future.

The survey by the Atlanta-based software publisher also produced at least two other major findings:

■ Large corporations have begun only recently to buy small quantities of microcomputers for evaluation purposes and are now busily experimenting with the machines in an effort to find out whether their benefits truly outweigh their costs.

■ As the year progresses and as personal computers gradually prove their ability to yield a significant return on investment, purchases of microcomputer products in the big

FYI

Look before leaping, Juneau learns hard way

By Edward Warner
CW Staff

JUNEAU, Alaska — It was the kind of mistake that often happens in a home computer store. The customer does not know what he wants and ends up spending more than he should.

In this case, it happened on a bigger scale, and the price tag could reach $490,000.

This is what the city-borough of Juneau — with a $1.2 million data processing budget — could end up paying for continued use of its outside service bureau and a software needs assessment study by a local consulting firm. It will incur those unanticipated costs because he went to a home-computer system, which was slated to go on-line in February, is unlikely to be online for another two years, according to DP director Jeannie Miller.

The Wang Laboratories, Inc. VS 90 minicomputer system and software, purchased for a total of $460,000, was supposed to go on-line six months from installation. That, Miller admitted, was an unreasonable expectation. The computer is now in place, but the software, from S-Cubed, Inc., is being held back until it can be tailored to the city-borough's specific needs.

What are those needs? That is the hitch. Miller, who was not hired until after the implementation program was under way, said that no thorough assessment of software needs was ever made by the city-borough, a combined city-county form of government, when it dove headlong into the in-house computer project.

The problem, according to Miller, is that no one involved in the decision to convert to an in-house system knew all that much about data processing. She noted that pri-

or to her arrival, the city-borough's DP department consisted of two data entry clerks working at terminals linked to the service bureau Systems Northwest, Inc.

Miller was quick to note that of the assisted $490,000 in costs, the $130,000 the city-borough expects to pay consultants David George and Associates for the needs assessment is the cost for a project the city should have undertaken in the first place. She admitted, however, that the $300,000 to $370,000 planned into her department's budget for the remainder of this and the of 1984-85 fiscal year could be exceeded if the computer system does not come online until April 1986.

Miller refused to point a finger of blame at any individual or entity within the city-borough. "There isn't anybody to point to," she said. "The people who wanted this

NEWSPAPER

NEWS

Stratus to extend its supermini line

By Tom Henkel
CW Staff

NATICK, Mass. — Stratus Computer, Inc. is scheduled to announce tomorrow two high-end additions to its Stratus/32 line of fault-tolerant superminicomputers.

While Stratus is calling the processors its Extended Architecture (XA) models, a spokesman said the term is not to be confused with IBM's 370/XA operating system. Like the original Stratus/32 processor, which has been renamed the FT 200, the new XA 400 and XA 600 use the firm's VOS operating system.

An enhanced version of VOS, Version 3.0, is being announced to support the XA 400 and XA 600. However, all applications developed for the FT 200 will run without modification on the newly announced machines, Stratus noted.

Use Motorola 68010

Unlike the FT 200, which uses the older Motorola, Inc. 68000 microprocessor, the XA 400 and XA 600 use Motorola's 68010 microprocessor. In addition, the XA 400 offers 3.1 times the internal performance of the FT 200, and the XA 600 offers 3.2 times the performance of the FT 200, according to Stratus' director of product marketing, Nicholas J. Bologna.

Current FT 200 users can field-upgrade to the XA 400, but not to the top-of-the-line XA 600. The reason, Bologna explained, is that in addition to using a different CPU board, the XA 600 offers twice as much main memory (up to 16M bytes) as the FT 200 and XA 400 and incorporates 48K bytes of cache memory. The FT 200 and XA 600 have a maximum 8M bytes of main memory and do not offer a cache memory.

The XA 400 has four internal CPUs, which can simultaneously execute instructions. The XA 600 has six

internal CPUs. Both have redundant CPU boards, which perform the same operations in lockstep; if an error is detected in one CPU board, the system shuts it down, allowing the second CPU board to continue processing. As a result, Stratus claimed, the user will not experience performance degradation.

Purpose and picture

The Stratus/32 line was developed primarily to perform transaction processing applications, and, Bologna said, all three models have been geared to complement IBM mainframe environments.

For example, some financial users install Stratus/32 series processors as front-end processors to IBM-oriented automated teller machine applications.

Up to 32 Stratus/32 systems, in any combination, can be linked in a network with existing FT 200 systems by using the firm's StrataLink local-area network.

A basic XA 400 configuration, which costs $185,000 and is slated to be available in October, includes a 50-slot chassis, two microprocessor CPUs, 4M bytes of duplexed main memory, two communications con-

trollers, two disk controllers, a tape drive and systems software. It can be expanded to up to 8M bytes of duplexed main memory with up to 21G bytes of disk storage. Up to 128 workstations and up to three tape drives can be attached to the system.

The basic XA 600 configuration includes a 40-slot chassis, two multiprocessor CPUs with 48K bytes of cache memory, 8M bytes of duplexed main memory, two communications controllers, two disk controllers, a tape controller and tape drive and systems software. In addition, the XA 600 incorporates arithmetic processors, which are said to improve the unit's performance in compute-intensive applications.

The XA 600 can be configured with up to 16M bytes of duplexed main memory, 43G bytes of disk storage, 256 workstations and three tape drives. The basic configuration costs $270,000 and will be available in May, Stratus said.

An upgrade kit that allows FT 200 users to migrate to the XA 400 costs $45,000 until July 17. It will be priced at $64,000 after that date, Bologna said.

Stratus is located at 17 Strathmore Road, Natick, Mass. 01760.

Stratus/32 multiprocessor CPU design

NAS

ply to IBM's recent additions to its X model processors (CW, Feb. 27). The first half occurred in late March, when NAS announced reductions in purchase prices and expansions in main memory for its existing AS/9000 line of large-scale processors.

NAS' two-stage response to IBM came hard on the heels of the industry giant's announcement of six X models for its 3083, 3081 and 3084 mainframe families. Although it boosts the 3080 line's performance by 6% to 14%, the IBM offering suffers from at least one serious shortcoming. Users of existing 3083, 3081 and 3084 systems are reportedly unable to upgrade the machines in the field to their X series equivalents.

No such barrier to field upgradability, however, applies to any of NAS' five new 8000 mainframes, Martin said.

In addition to offering a less wrenching migration path than the X series machines, the 8000 processors reportedly compare favorably to their IBM rivals in internal performance. The 8023, for example, at least equals the power of the 4381 Model Group 2 and, in some instances, outperforms its IBM counterpart by as much as 10%, Ludwig said, while the 8043 typically pro-

vides 10% greater throughput than the 3083 Model EX.

The 8053, 8063 and 8083, meanwhile, match the performance of their 3083 or 3081 equivalents, according to an NAS spokesman.

Intended primarily for remote, decentralized computing sites rather than for large corporate NAS facilities, the five members of NAS' 8000 line span three mainframe performance ranges, Martin said.

The 8023 is classified as an intermediate-scale processor and provides a migration path for 4381-class users who need additional capacity, but want to continue using comparatively old IBM operating systems, such as DOS/VSE.

The 8083, by contrast, qualifies as a true large-scale, dual-processing CPU, with performance exceeding 6 million instructions per second (Mips), and serves as a bridge to NAS' largest mainframe family, the 9000.

Together, the 8063 and 8023 bracket the 8043, 8053 and 8063 models, which NAS categorized as entry-level, large-scale machines with internal performance ranging from 4 to 8 Mips. The 8043, 8053 and 8063 define the boundary where users typically make the transition from DOS or VM to newer operating systems like MVS, Martin said.

As long as they remain at the 8023 or 8043 end of the mainframe performance spectrum, most users will probably be content to continue operating in relatively old software environments, such as DOS/VSE. But once they migrate to the 8063-class performance level or beyond, customers are usually forced to convert to MVS, Ludwig added.

All five members of the 8000 mainframe line expand to hold up to 32M bytes of main memory and 24 channels. The processors also support the 3E-byte, storage-protect key, which is reportedly necessary for accommodating older IBM operating systems like DOS/VSE, DOS, VM, VS1 and MVS 3.8.

A 4M-byte 8023 with eight channels costs $639,000, while the 8043, 8053 and 8063 sell for $1.26 million, $1.76 million and $2.25 million, respectively, in 8M-byte, eight-channel configurations. A 16M-byte 8083 with 16 channels costs $3.5 million.

Although the 8043 is available now, shipments of the 8023, 8053 and 8063 are not set to begin until the third, second and fourth quarters of this year, respectively. The 8083 is scheduled to be available during next year's first quarter.

NAS is located at 600 E. Middlefield Road, Mountain View, Calif. 94043.

Geisco selling dial-up use of its T/S net

By David Myers
CW New York Bureau

NEW YORK — General Electric Information Services Co. (Geisco) last week went to the commercial end-user market offering dial-up use of its 600-city teleprocessing network.

In a related announcement, the company revealed it has entered into a joint marketing agreement with Wang Laboratories, Inc. for end-to-end document distribution to Wang terminal computers via the Geisco Quik-Comm electronic mail service.

Geisco, which had been expected to make its network available to customers last year, introduced a value-added net for transmission, processing, storage and integration of data between privately owned computer installations within the U.S. It thus became one of a growing number of old-line time-sharing firms to sell access to its teleprocessing network as a way of filling excess capacity left by the dwindling of the once-lucrative remote computing business.

Christened Mark-Net, Geisco's data communications network will be unbundled from the company's 14-year-old Mark III packet-switching network and will combine satellite transmissions with 100,000 miles of

land lines. However, the Rockville, Md.-based firm is aiming to construct an all-satellite system in order to integrate voice and data transmissions in a single shed on customers' property and to bypass anticipated access charges, according to Gerhard D. Mueller, engineering manager at Geisco.

Mueller admitted the all-satellite network represents Geisco's bid to make information networking profitable through "economies of scale." It is doubtful if any information services company has yet turned a profit through networking, according to industry analysts.

The value-added network announced last week will offer electronic mail and bulletin board software as well as error detection and retransmission, full redundancy and central site control of remote nodes, said Robert D. McCalley, general manager of Geisco's network operation. McCalley added that the net will support synchronous and asynchronous communications through either X.25 or asynchronous interfaces.

In addition, the information network will enable data communications between IBM hosts and 3270 terminal clusters or bisynchronous

controllers at remote sites.

Support of IBM 3780 and 3780 remote job entry terminals as well as Systems Network Architecture and Synchronous Data Link Control is yet to come, McCalley said.

Microcomputers sold by IBM, Apple Computer, Inc. and Radio Shack can be hooked up to the network. Wang personal computers will be the next pieces of hardware expected to be able to plug in, McCalley said.

Geisco's remote computing services sales force will market the value-added network with the help of a number of "specialists," McCalley said. Observers noted Geisco's marketing strength with Fortune 1,000 firms, but questioned whether time-sharing sales representatives would be successful at selling a different technology and bundle of services.

The joint marketing agreement with Wang caught visitors to Geisco's news conference here last week by surprise. Under the agreement, sales reps from each firm will essentially recommend the other's product. Wang, however, has made known its intention to build an information network of its own under contract to Bolt Beranek and Newman, Inc. of Cambridge, Mass. [CW, Sept. 26].

On-Line exits applications market

By Paul Gillin
CW Staff Writer

FORT LEE, N.J. — On-Line Software International, Inc. is immediately halting development and marketing of its Production Optimization System (Plos), its manufacturing resource planning (MRP) software for IBM's OCS/DL/1 environment.

Introduced two years ago, Plos was On-Line's first departure from its traditional systems software focus. Billed as a modular manufacturing control system, the package consists of eight functional modules and sold for up to $300,000 for an entire system.

Plos is a version of an MRP product developed by Rath & Strong Systems Products, Inc. for Cullinet Software, Inc.'s IDMS data base management system. On-Line invested $1.5 million converting it to run in the OCS/DL/1 environment. The company has sold two complete Plos systems and one partial system.

On-Line President Jack Berdy said it became apparent in recent months that the staff commitment required to support the product was running far ahead of revenues from the product. "We didn't realize the support requirements for each sale," he said. "It was a draw on both talent and money. It takes so long to make a sale in the first place, and then customers want a lot of extra support after that."

Since all development costs have already been expensed, the decision to discontinue Plos will not affect the company's bottom line, he said. On-Line is negotiating maintenance contracts with existing customers, but maintenance will probably be picked up by Rath & Strong eventually, Berdy said.

The 18 On-Line employees who were assigned to Plos have all been reassigned within the company.

Berdy said he believes the MRP market is underpriced and is not yet mature enough to reap large profits.

He said On-Line has no plans to re-enter the applications market in the foreseeable future.

IBM first-quarter profits up 23%, hit $1.2 billion

ARMONK, N.Y. — IBM showed profits of $1.2 billion for its first quarter, up 23.1% over the $976 million reported in the year-ago period. Earnings per share were $1.97, up 21.6% from the 1983 quarter, the company announced last week.

Worldwide revenues for the quarter totaled $9.5 billion, up 16.7%

from the $8.2 billion reported a year earlier. Revenues from sales grew 26.4% to $6.4 billion, while revenues from rentals decreased 26.2% to $1.9 billion. Revenues from services were $2.1 billion, up 25.5% from the $1.7 billion reported in the 1983 first quarter.

"Order activity for our products

continues to grow at a strong pace," IBM Chairman John R. Opel said. "The growth spans the product line and is significantly above last year's levels."

Costs of sales, rentals, service and expenses were $7.5 billion, an increase of 16% from $6.5 billion a year ago.

MSA from page 1

business roots will steadily grow.

The purpose of the survey, which elicited about 500 responses, was to lay the information groundwork for the creation of MSA's Micro Distribution Division, according to the firm's senior vice-president, Howard Smith. Headquartered in the Southern California city, the division provides large corporations with personal computer application packages from multiple vendors.

Although micros are slowly gaining acceptance in the commercial world, big businesses have barely scratched the surface of the machines' potential usefulness. "Most large corporations use their personal computers for only about an hour a day and can only use one application on the machines," Smith said.

Smith's conclusion is borne out by the survey, which shows that most Fortune 1,000 firms use their micros strictly for doing spreadsheets. The only other personal computer applications found to be significant in the study are office productivity, data base management and accounting.

Although many microcomputers may be able to justify their existence solely as spreadsheet generators, the machines are equally capable of serving in many other capacities as well. Moreover, the vast untapped potential of personal computers is slowly

being recognized by top management, which is increasingly demanding that users squeeze as much information processing mileage from the products as possible, Smith said.

Toward that end, many Fortune 1,000 corporations are beginning to shed indifference to personal computing and are planning to increase their personal computer acquisitions incrementally. "Large companies are starting to feel a lot of pressure from their end users and are now trying to learn how microcomputers work in big organizations and determine whether they want to buy additional personal computers," Smith said.

The big business world's budding infatuation with micros is reflected in MSA's survey results, where 11% of the respondents indicated their intention to buy 100 to 500 personal computers this year, and another 11% indicated 50 to 100 units.

As the business sector's microcomputer population has grown, large corporations have shown an increased interest in justifying the machines' costs. A case in point is a large Northern California user company that recently evaluated the performance of its 50 to 100 personal computers and ultimately credited the products with cutting costs by $6 million, Smith said.

In other comments, the MSA senior vice-president described most MIS managers as woefully ignorant about

microcomputers and their potential applications. "Many DP directors were unprepared for the personal computer field's explosive growth and have been standing on the sidelines [ever since]," he said. "By the time they turned around and realized what had happened, a lot of personal computers had already entered their companies, and they had simply lost control. Now many of them are at a complete loss to know what to do."

DEC ties micros more tightly into office environment

By Eric Bender
CW Staff

NEW YORK — Digital Equipment Corp. last week introduced a host of products here that it said enhance its Professional and Rainbow personal computers and integrate the micros more closely into that vendor's office system environments.

Highlighting the Professional side of the announcements were Decnet local-area networking for the Professional 350 and a software package for both the Professional 325 and 350 that brings many features of DEC's VAX/All-In-1 office automation software down to the desktop micro (story below).

On the Rainbow side of the announcements, DEC replaced its Rainbow 100 with a more powerful floppy disk version that will sell for the same price.

The firm also unveiled Binary Synchronous Communications packages enabling Rainbows to emulate IBM 2780/3780 and 3270 terminals (story below).

The announcements "expand Digital's office strategy to provide sys-

tems solutions at every level of an organization — personal, departmental and corporate — with the communications to tie those products together," the company said.

However, some industry analysts remarked that one remaining gap in the product line is a Decnet interface for the Rainbow, but DEC is expected to introduce this feature at a later date.

The new products will be on display this week as DEC begins a nine-city exhibition tour that will focus on its personal computers, microcom-

puters and terminals. The Spectrum '84 tour will open on April 18 in Dallas at Loew's Anatole, then move to Atlanta's Peachtree Plaza April 25-27; Houston's Albert Thomas Civic Center, April 30-May 2; Chicago's Conrad Hilton, May 8-10; the Salt Lake Palace in Salt Lake City, May 16-18; the Memorial Coliseum in Portland, Ore., May 18-19; San Francisco's Sheraton Palace, May 23-24; and St. Louis' Chase Park Plaza, May 30-31. The tour will make its final stop at the Meadowlands Hilton in the New York area on June 11-13.

Among offerings for the Pro: Ethernet local networking

NEW YORK — Digital Equipment Corp.'s introduction here last week of enhancements to its Professional 325 and 350 microcomputers represents "the most important product announcements since we began shipping the product," said Nathan Kalowski, Professional product group manager. Among those announcements were:

■ Ethernet-based local-area networking with Decnet, which allows the Professional 350 to act as a distributed workstation within the Digital Network Architecture, along with PDP-11 minicomputers and VAX-11 superminis.

The Professional previously offered file-structure compatibility with PDP-11s and VAX-11s, but links were primarily limited to data transfers. The Decnet connection gives the Professional full access to all resources on the network, Kalowski said.

Additionally, intensive processing functions can be handled locally, enabling host computers to handle data base operations more efficiently, DEC said.

The PRO/Decnet software, which runs on the Professional 350's 10M-byte Winchester disk, will cost $95 when it becomes available next month. The Digital Ethernet CTI Network Adapter network controller, also available in May, is priced at $595. The Digital Equipment Local Network Interconnect, which allows Ethernet-compatible devices to be grouped together up to 50 meters away from the network connection, is available now for $995.

■ The PRO/Office Workstation software package, which allows the Professional to function as a distrib-

uted workstation for the VAX/All-In-1 office automation package.

DEC's All-In-1 office information system is an applications software package that provides a range of integrated tools, such as document processing, electronic mail, calendars and decision support. The package will be ready next month for $950.

■ For videotex applications, two software packages that allow the Professional 350 to act as a North American Presentation-Level Protocol Syntax (NAPLPS) videotex terminal or as a stand-alone desktop videotex host.

PRO/NAPLPS works on the Professional's existing hardware and will be available next month at $185 for P/OS Version 1.7 systems. PRO/Videotex permits users to store a complete videotex data base on the Professional's hard disk drive, significantly reducing the communications costs associated with accessing a remote videotex host. PRO/Videotex will be available in May for $695 for P/OS Version 1.7 systems.

■ Version 2.0 of the P/OS operating system, with enhancements, including Decnet support. Version 2.0 now comes standard with both the Professional hardware and the Decnet software; it can be purchased separately for $250.

The Professional CTS-300 software system, which offers DEC as a software development tool to business users. It is available for $995.

■ Engineering Systems Corp.'s Design Graphix/Executive computer-aided design and drafting software, available now for $595.

More information about these products is available from DEC in Maynard, Mass. 01754.

DEC's Model 100B heads string of Rainbow announcements

NEW YORK — Digital Equipment Corp. announced here last week that it is replacing its Rainbow 100 personal computer with the Rainbow 100B, a more powerful version of the floppy-disk-based microcomputer that will sell for the same price. The Rainbow 100B offers twice the base memory (128K bytes) and four times the expansion memory (768K bytes) of the Rainbow 100 and can be upgraded to accept a hard disk drive.

The Rainbow 100B is available now for $3,750, excluding keyboard and monitor. With keyboard and monitor, it costs about $3,500, said Robert Nussbaum, Rainbow marketing manager. An option that adds a 10M-byte hard disk to the Rainbow 100B, creating a Rainbow 100 Plus, will sell for $2,300.

In announcing the Rainbow 100B, DEC emphasized its plans to support existing Rainbow 100 users. In other Rainbow announcements, the company introduced:

■ An expansion of the Rainbow 100's memory, adding up to 768K bytes of random-access memory (RAM) for a total of 832K bytes. The company said 64K-byte boards cost $149; 256K-byte boards are priced at $595.

■ For a limited time, two systems based on the Rainbow 100, each featuring a 5M-byte hard disk drive and everything else included in a basic system except a monitor. A system with 128K bytes of RAM will sell for $3,995; a version with 256K bytes of RAM will be offered for $4,595.

■ The Gold Key Country Kit package, which allows the Rainbow 100B and 100 Plus to be used as VAX-11 terminals for the All-In-1 office information system. The package is

available now for $245.

■ Poly-BSC/RJE and Poly-BSC/3270 Binary Synchronous Communications (BSC) programs, allowing Rainbows to emulate IBM 2780/3780 and 3270 terminals, respectively. Both are currently available, Poly-BSC/RJE for $600 and Poly-BSC/3270 for $666.

■ A Rainbow version of Digital Research, Inc.'s Concurrent CP/M, which allows up to four CP/M applications to run simultaneously. Host off-the-shelf -CP/M applications "which are well-behaved and don't dive down to call the hardware directly" will run under Concurrent CP/M, Nussbaum said.

■ The availability for the Rainbow series of third-party application software now sold by DEC: Context Management Systems, Inc.'s Context MBA, priced at $595; Samna Corp.'s Samna Word II, $450; and Software Publishing Corp.'s PFS:File and PFS:Report, each offered for $140.

■ A Personal Presentation System, available under agreement with Polaroid Corp., which turns Rainbow screen graphics into 35mm color slides and prints "on your desk" for less than $1 a slide, Nussbaum said. The system costs about $7,200.

■ The Rainbow Remote Graphics Instruction Set (Regis) program, which permits Rainbow users to work with VAX-11-based and PDP-11-based graphics applications, available now for $175.

■ The Technical Character Set, a read-only-memory-based product for generating special characters. It is slated to be ready in June for $95.

More information about these products is available from DEC in Maynard, Mass. 01754.

CORRECTIONS

Due to a reporter's error, the story on Page 5 in the April 9 issue of *Computerworld* said the DEC high-end VAX adds 50% to 60% more power." According to Digital Equipment Corp.'s performance claims for the VAX-11/785, the system can actually operate 50% to 70% faster than the Model 780 in compute-intensive applications in both commercial and technical markets.

The story about the reinstatement of criminal charges against three defendants in a highly publicized trade-

secrets theft case ["Judge reinstates charges," CW, April 9] incorrectly identified National Advanced Systems, Inc. (NAS) as a subsidiary of Tokyo-based Hitachi Ltd. NAS is owned by National Semiconductor Corp. and acquires its IBM-compatible mainframes from Hitachi.

"Software conference seeks new committee members" [CW, April 9] incorrectly stated that the Conference on Software Maintenance will be held Nov. 11-13, 1984. The conference is set for Nov. 11-13, 1985.

JUNEAU

wanted it very much and were very sincere."

She also refused to blame S-Qubed for the software delays, saying those delays are the city's fault and arise from its lack of certainty about its software needs. She speculated that the software purchased for the system is better suited for use with commercial applications and will have to be tailored for municipal uses.

Not everyone involved in the city-borough's government is so magnanimous, however. According to press accounts, one city-borough assembly-

man chastised the city-borough's administrators and consultants, who reportedly recommended the system last year. "We were convinced our people were right — they were wrong," Assemblyman Hugh Grant told the *Juneau Empire*.

Miller could not say where the idea originated that a new, in-house system could be brought on-line in only six months.

She said she arrived on the job shortly after the decision was made and found "they [S-Qubed] were going to start dropping software on us. I just finally said that we've got to stop this."

What's in a name? Success, if a vendor is lucky

Makers of large systems software tell how they named their products

> *What's in a name? That which we*
> *call a rose*
> *By any other name would smell as*
> *sweet.*
> — William Shakespeare
> *Romeo and Juliet*

By John Gallant
CW Staff

What's in a name, indeed. For the manufacturers of large systems software, whose product labels are carefully crafted to convey a lasting image or grab a prospective buyer's eye, a name can sometimes spell success for a package. And the stories behind the names are often as interesting as the names themselves.

"It's very difficult to come up with a name for a new product," said Richard Peres, head of marketing for ADR Corp.'s Adroit software. "You need a one-word name that people can easily identify with. But that word can't be too common, or people won't associate it with the product for very long.

"It should either be a name that says exactly what the product does or an adjective that describes the product or an acronym for a longer name."

Peres and colleague Barry Walter, product manager for Adroit, spent nearly four months mulling over names for the recently developed computer-based training course generator.

The duo was unhappy with the product name — Naturalwrite — that came with the package when it was acquired from GAI, Inc., so Walter went to the dictionary for assistance.

"He looked at every word that started with ADR in that book," Peres recalled, "and the best one was Adroit.

"It means 'skillful and clever,' which we feel is a good image for the package, and it also worked out to an acronym — the ADR On-line Interactive Training system. I didn't like it at first, and I spent a month trying to beat it, but I just couldn't."

Unfamiliar with the Wizard decision support system (DSS) and the Socrate data base management system (DBMS)? Those are the names under which two widely used software packages are marketed in Europe.

Their respective manufacturers, Comshare, Inc. and United Software Systems & Services Corp. (USSS), had hoped to use those names in the U.S., but were unable to do so because of possible copyright violations.

The products are better known here as the System W DSS and the Clio DBMS. "When the development

project for System W began," said Comshare spokesman Larry Blair, "we code-named the project W as a sort of front-end acronym for the 'World's Best Modeling System,' which was what we set out to make. When the software was ready to be marketed, we developed the name Wizard, but when problems arose with that, we settled on System W. Naturally we were disappointed, but the System W name seems to have worked out just fine."

When the first version of Clio was developed by Syseca, Inc. at the University of Grenoble in France, the DBMS was named in honor of the Greek philosopher Socrates. Finding that name already spoken for in the U.S., the company labeled the software Clio instead — a reference to the Greek goddess of memory, according to a spokesman for USSS, which supports and distributes the system here.

McCormack & Dodge Corp. (M&D) held a companywide contest to name what would later be known as the

Millennium fourth-generation language system.

As a group of marketing strategists reviewed the contest entries, M&D Vice-President of Marketing Bob Weiler stood and listened. After a few moments, according to a spokesman, Weiler turned to the group and said, "We're talking about the future, aren't we? How about Millennium?" Despite all the other offerings, that name stuck.

Images of the future

Images of the future were also behind the name of Intel Corp.'s System 2000 DBMS, according to spokesman Dale Weisman. "System 2000 was developed by a company known as Management Research International, Inc., which Intel later acquired.

"While they were working on the product at their headquarters in Austin, Texas, a theater nearby was playing *2001: A Space Odyssey*. They came up with System 2000 to reflect the kind of advanced technology portrayed in the film."

There isn't always a logical explanation behind how a product is named, though, as the case of Bell Laboratories' Unix operating system illustrates. "About 14 years ago, Bell Labs was working on the Multics operating system with MIT," according to spokesman Ralph Dobriner. "We dropped out of that project because Ken Thompson, one of the co-developers of Unix, felt he could develop a simpler operating system. He came up with the name Unix as a pun on Multics, a play on words, even though the systems have nothing in common."

Sometimes a code name or project name sticks

When it finally comes time to market software after a long development effort, some manufacturers just cannot let go of the project name.

Take Oracle Corp.'s Oracle data base management system (DBMS). "In 1977, when we were still named Relational Software, Inc., we got a contract with a government agency to develop a relational DBMS," spokesman P. Michael Seashols recalled.

"The code name for that project was Oracle, and the founders of the company decided to stick with that name when the software was offered commercially," according to Seashols.

"In 1983, we changed the company name based on the wide product recognition Oracle had earned," Seashols went on to say.

Computer Corp. of America

A spokeswoman for Computer Corp. of America said that company's Model 204 DBMS, the offspring of a sponsored research program, was initially known as Model 101.

The numeric portion of that title was to change as the software

underwent revisions on the road to becoming a commercially viable system.

When the package was released, Computer Corp. of America chose to retain the internal naming structure.

Mathematics Products Group

Originally developed as a marketing application program for Al-Del Chemical Co. in the mid-1960s, Mathematics Products Group's Ramis was an acronym for the Rapid Access Marketing Information System.

When the application later became a "full-blown product," according to Mathematics spokesman Paul Grabscheid, the company retained the Ramis acronym, simply replacing "Marketing" with "Management."

"In the mid-1970s, we completely rewrote the package to Version II, and it came to be known as Ramis II," Grabscheid said.

"Some people confuse the name with the Egyptian king Ramses, but it isn't quite that glamorous. It's nothing more than an acronym that few people remember today," according to Grabscheid.

Vendor names: Odd logic
The Cat's Pajamas, Pansophic Systems . . .

By Paul Gillin
CW Staff

From the sublime to the ridiculous, the names of software companies are often the result of a thought process that only a computer person can understand.

A mention surely must go to The Cat's Pajamas, a Berkeley, Calif.-based seller of software for the publishing industry. The small company got its name one night when its founder and president, Wayne Oison, was mulling over the idea with his four children.

"I told the kids I was going to start a software company. The kids wanted to know why it was called 'software,'" Oison said. "I said it was something that had to fit comfortably. One of my children said, 'Just like the cat's pajamas.'"

The unusual tag has caused some problems. "At the University of Nebraska, the purchasing people refused to issue a purchase order to a company named The Cat's Pajamas," Oison said. "We've also had some people call the company and think they've got a wrong number."

But Oison plans to keep the name. "I think it's memorable," he explained. "So many software companies are named Automation something or Service something that it all begins to sound the same."

Goal Systems International, Inc. sounds obvious enough, but "Goal" is actually an acronym for the last names of four Westinghouse Electric Corp. employees who in 1976 talked about starting their own company. Although the four eventually went their separate ways, Steve O'Donnell, the "O," liked the acronym enough to keep it as the name for his fledgling firm.

But the name has generated some misunderstanding. "People sometimes think it's a company that specializes in motivating people," O'Donnell said.

Pansophic Systems, Inc.'s name was chosen by founder and chief executive officer Joe Piscopo. "It comes from the Greek derivations 'pan' and 'soph,' which roughly translates to 'universal wisdom,'" a spokeswoman said. The company was founded in 1969.

Tower Systems, Inc. of Irvine, Calif., was named for a building. One day in 1975, Tower President J. Gregory Stenson was talking with his lawyer about possible names for his newly established company. "Like all good decisions, this one was made in a bar," according to Greg Collins, vice-president of marketing and sales.

Stenson and his lawyer had adjourned to a watering hole at the top of the Occidental Building in downtown Los Angeles. There, on the back of a napkin, Tower Systems was christened in honor of the building that housed the tavern.

Management Science America, Inc. started out as Management Science Atlanta, Inc., but as the company grew, so did the scope of its name. The change took place in 1971.

Candle Corp. draws its name from a slogan. The company was founded in 1977 with the motto, "Innovators in illumination."

"It involves lighting the way for

systems analysis and programmers into the mysteries of systems software," said spokesman Michael Oliva.

Tone Software Corp., like many companies, was named for its flagship product. Introduced in 1974 and still on the market, the product is a utility that allows IBM's TSO to run under IBM's VM operating system. Combining the "T" from TSO and the "one" from VM, Tone was born.

Today, Tone markets about a dozen products, but is still latched firmly onto its 18-year-old identity. "We

What makes a name work?
Expert offers guidelines

By Paul Gillin
CW Staff

SAN FRANCISCO — What do Digital Equipment Corp.'s Rainbow, Software Publishing Corp.'s PFS series and Mathematica Products Group, Inc.'s Ramis software all have in common?

They're all poorly named products, according to an expert here.

Ira Bachrach has some very strong opinions about names. He is president of Namelab, Inc., a com-

pany that commands a good deal of respect and a lot of money for the names it formulates for products and companies.

Namelab earns up to $30,000 per name and boasts a list of over 130 clients, including many of the top consumer products companies, Bachrach said. Its client base of late has increasingly included computer and software companies.

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Namdah is painstakingly scientific in its approach. Its names are the result of months of psychological, linguistic and legal research. They are intended to hit a carefully targeted audience with a message that conveys emotion, experience and images and does it in one or two syllables.

More importantly, the name must be memorable, according to Bachrach.

Bachrach gave a linguist's eye view of some popular computer industry names:

■ IBM Personal Computer: "Brilliant. They defined what the personal computer was."

■ Lotus Development Corp.'s Symphony: "Also brilliant. It conveys many things working together and

implies intellectual superiority. In software, that's wonderful."

■ DEC: Rainbow: "DEC decided this was a name that was going to make you smile. But it was so far away from their usual product names that I suspect a lot of buyers didn't see it as anything substantial."

■ The FPS series: "Absolutely silly. It's a good idea to give continuity to your product names. But it's mystical and not easy to understand."

■ Panasonic Systems, Inc.'s Easytrieve: "So simple and obvious that it makes the product seem trivial."

■ Ramis: "Moronic. It means 'rapid-access management information system,' but RAM means 'random-access memory,' and it's confusing."

■ Oxford Software Corp.'s UFO (User Files On-Line): "This is called an adapted metaphor. Unfortunately, the acronym UFO has nothing to

do with software."

■ Masys Corp.'s Turbodos: "Ugh. [The turbo concept] is so obviously appropriated that it's not effective."

■ Cullinet Software, Inc.: "Pretty good."

■ Apple Computer, Inc.: "Very effective. It conveys simplicity."

Bachrach also describes the thought behind some Namelab creations:

■ Compaq Computer Corp. (formerly Gateway Technology, Inc.): "We wanted a name which took command of the idea of portability. 'Pack' does this, and the letter 'q' conveys an advanced technical quality."

■ Datago Corp.: "This will be a chain of stores oriented toward high-volume sales of computers and communications. We think Datago communicates this volume nature."

thought about changing it a couple of years back," said Gary Cooper, director of marketing, "but we'd later wish it long enough that it was hard to change."

Although Software AG of North America, Inc. is a mouthful in itself, the name doesn't begin to compare to Software Aktien Gesellschaft, the title of the Darmstadt, West Germany, company from which the American counterpart was formed. Software AG President John Maguire considered numerous naming options when he founded his company in 1973. He elected to emulate the German firm because of the revered status the AG title carries in that country.

By the way, the name of the company's Adabas product is short for Adaptable Data Base System.

Networks from users' viewpoint focus of New York conference

NEW YORK — An in-depth, case-oriented approach to telecommunications networks will be the focus of "Networks: The User's Perspective," a conference that will be held at the Doral Inn here June 20-21 by the Institute for International Research.

The conference will feature Kashash Khanna, vice-president of corporate systems and technology for American Express Co., who will speak on the network installation at the company's new 51-story New

York headquarters.

Roberta W. Fruckman, vice-president of corporate telecommunications for Manufacturers Hanover Trust Co., will discuss that company's 10-year plan to integrate its domestic and international transmission facilities.

Steve LaPorte, manager of communications network services for Medtronics, Inc., is scheduled to speak on the topic of hardware and software purchasing in a multivendor environ-

ment, the conference sponsor said.

Chase Manhattan Bank Vice-President Harvey S. Hershkowitz will speak on the impact of the AT&T divestiture and will examine the effect on tariffs, network planning and control.

"Getting the Best Return on PBX Investments" will be the topic of Richard Manzo, who is telecommuni-

cations vice-president for the American International Group.

The cost to attend the "Networks: The User's Perspective" conference is $695.

More information is available from the Institute for International Research, which is located at Suite 1105, 810 Madison Ave., New York, N.Y. 10017.

DOD, Commerce collide
Over control of micro exports to Soviets

By Bryan Wilkins
CW Washington Bureau

WASHINGTON, D.C. — With an Apple Computer, Inc. Apple II+ and a 256K-byte Grid Systems Corp. portable computer as witnesses, top officials of the U.S. Department of Defense (DOD) last week showed a Senate committee how commercially available systems have become critical to their battlefield management plans.

The Apple and Grid microcomputers have been deployed in the last two years with Nato forces in Europe, where they are performing battlefield functions such as strategic analyses and troop management decisions. "I cannot stress enough the extraordinary potential of the small computer on the battlefield," Richard Perle, assistant secretary of defense for policy, told the Senate Permanent Subcommittee on Investigations.

While DOD was recently given authority to review the export of computers to Western countries suspected of being shipment points to the Eastern bloc [CW, April 9], a messy interagency dispute has pitted DOD against the Department of Commerce over the issue of controlling exports of small computers to the Soviet bloc. The interagency dispute broke into the open last December, as the U.S. met in Paris with its European allies and Japan at the Coordinating Committee for Multilateral Export Controls (Cocom).

Negotiations with Cocom

Cocom is the formal agency that the Western allies use to coordinate the transfer of technology to the Soviets through a formal licensing procedure. The U.S. negotiating team was forced to ask its allies for an extension of time while the U.S. government hammered out a formal position for presentation to Cocom this coming May on the issue of export controls on small computers. Last week, Perle told the Senate committee that the U.S. is currently negotiating within Cocom on the issue of small computer and electronic sales to the Soviets.

"Some people believe that because these machines are widely available on the open market, we shouldn't try to control the Soviet acquisition and [should] let it pass," Perle said. "We believe that a control regime can be established. ... We seek to control the ease with which the Soviets can buy computers, especially like the Grid.

"We know we cannot put a hermetic seal around the Soviet Union," he added, "but we don't want them to be able to import them by the thousands."

Lionel Olmer, Assistant Secretary of Commerce for International Trade, told the committee that it is "a gross misstatement to suggest that the Soviets are technologically backward. They are producing 100% of their semiconductors used for military purposes and 45% for commercial uses." He agreed with Perle on the need to restrict exports of semiconductor manufacturing equipment to the Soviets.

"Volume controls are an issue when it comes to commercially available equipment," Olmer said. He added that he is optimistic that agreement could be reached with DOD on the dispute. However, Perle revealed during his testimony that there are differences of view even within his own agency on the extent of the controls needed over commercially available computers.

Large U.S. companies that manufacture computers that would be affected by the export controls have been putting pressure on the Reagan administration to ease up on the restrictions that have been coming down on export licenses in recent months.

Give Ada to USSR, he says

By Edward Warner
CW Staff

NORWALK, Conn. — The U.S. should lift its embargo on shipments of sophisticated computer equipment to the Soviets and give them free training in the Ada language, which the Defense Department is now using to develop all its mission-critical applications.

Sound preposterous? Not if you want to save humanity from "World War Last," writes Steven B. Weissman in the April issue of the "Ada-tronics Newsletter," which he edits.

According to Weissman, a nuclear war could be caused by a glitch of soft error in the Soviet Union's "all but obsolescent processors." A soft error occurs when natural radiation foils a computer into thinking an instruction has been input. "Our very lives," he wrote, "hang on the slim hope that either Russian computer environments are proofed against soft errors or that Soviet technicians know how to stop a launch in the face of a computer rebellion."

The article goes on to suggest that sales of computers to the Soviets will boost the domestic computer market and that sending the Soviets "a present of Ada" will "not only act as a sort of nuclear insurance policy, but will also help drive the domestic Ada market."

Is Weissman joking? Only in the article's tone, he said in a telephone interview last week. He's serious about the article's central idea, one he admitted he has heard no other person put forth. "It seems like an oddball idea," he said, "but it real y isn't."

While humorous in tone, the article had a darker point, to make that, in Weissman's words, "thanks to automation, we know we can obliterate each other any time we want. isn't it time we worked toward a point where we could at least trust each other's technology, if not each other?"

The basis for that trust, Weissman argued, could be the high reliability of the Ada language, developed for the Defense Department for military uses in a worldwide software competition. The language is so reliable it was named in January as the standard for all U.S. military computer systems, according to Adatics publisher Kenneth G. Bosworth.

In an interview last week, Bosworth said that Weissman was oking about selling any computer hardware to the Russians. "I'm not at all in favor of letting the Russians have more computer hardware than they already have," Bosworth said.

But Weissman may not have been joking about offering the Ada language to the Soviets who, he wrote, are no further along in Ada development than we are. The language, a variant of Pascal, could be taught to Russian programmers and students by U.S. technicians, he wrote.

NEWS

Software developer sues Hertz for program payment

By Edward Warner
CW Staff

NEW YORK — A software development firm is suing auto rental giant Hertz Corp., claiming that it put Hertz in the driver's seat of a custom-made terminal emulator program but was never paid for its service.

Filed late last month in New York Supreme Court by Micro/Macro, Inc., the suit asks $250,000 in compensation. It claims that Hertz requested Micro/Macro to develop the terminal emulator so that Hertz could replace its Lear Siegler, Inc. ADM-32 terminals with IBM Personal Computer XT microcomputers and Victor Technologies, Inc. 9000 microcomputers in its

Fleet Rental Division offices across the country.

Micro/Macro produced the terminal emulator in a six-week crash effort, gave it to Hertz management and received its approval but no money, according to John Petye, Micro/Macro's vice-president for software service. "All they said was, 'That's nice,'" Petye said. "We performed the work to specifications in good faith, and Hertz just ignored its commitment."

Petye said he does not think Hertz ever put the emulator program into use. He speculated that Hertz lost interest in acquiring the emulator software when the executive who headed the project was transferred and his replacement "didn't want to go down that path."

Hertz's manager of public affairs, John Briton, said he hadn't seen the suit and that his firm would prefer "to answer charges in court and not in the press." He declined to comment further on the case.

Hertz had still not responded to the suit through its attorneys by early last week, Petye said, noting that the 30-day limit for such a response was drawing close. If the firm fails to respond, Petye said, the court could enter a default judgment against it.

Micro/Macro's manager of legal systems, Wayne Robertson, said that

while he knows of no contract signed between the two firms, an exchange of letters had informed Hertz that Micro/Macro "does not do work on speculation." Petye said that approximately $66,000 was spent by Micro/Macro in developing the software and that its agreement with Hertz promised reimbursement for those development costs, plus $62,000 for licensing the software to the rental firm and $11,000 for support and services.

Security panel recommended

WASHINGTON, D.C. — A Congressional subcommittee has wrapped up hearings on computer and communications security and privacy by recommending the establishment of a national commission to investigate a range of computer-related problems.

The recommendation was one of several presented at a press conference last Wednesday by Rep. Dan Glickman (D-Kan.), chairman of the House Science and Technology Subcommittee on Transportation, Aviation and Materials, and Rep. Bill Carney (R-N.Y.), ranking subcommittee minority member.

The two congressmen, whose subcommittee has conducted a year-long investigation into computer security problems in the government and the private sector, released a report prepared by the Congressional Research Service of the Library of Congress. The report maintains that insufficient attention is paid by the federal government to the growing problems of computer crime, privacy and unauthorized access of data bases.

Commenting on the findings of the subcommittee, Glickman accused the government of paying "good lip service" to these issues without taking proper action to prevent what he called "catastrophes in this country waiting to happen both in and out of government."

Besides calling for a national commission, he listed several other steps to correct this situation:

■ The Office of Management and Budget (OMB) should "provide a focus" for computer and telecommunications security and privacy activities within government, including the preparation of a manual to give agencies guidance in planning and implementing security measures.

■ "An intensive [security] training effort is needed in this country for both computer users and security personnel. . . The federal government ought to be involved in that, the National Science Foundation [and] universities."

■ OMB should establish security data classification to protect sensitive computer data.

■ The National Bureau of Standards should be given the resources to certify security methods and systems for government and private computer users.

Glickman said that if the administration does not adopt the national commission plan he will push the idea legislatively.

NEWS

AT&T, communications users oppose rate compromise

By Phil Hirsch
CW Washington Bureau

WASHINGTON, D.C. — A compromise to resolve the complex, increasingly bitter battle over pending rates for dial-up and private-line service appeared headed for the scrap heap last week after it was vigorously opposed by both AT&T and key communications user groups.

The proposal, which elicited comments from about 130 carriers, users and related organizations, was advanced last month by the National Exchange Carriers Association (Neca), which represents most of the nation's local telephone companies. The plan's key features include the following:

■ Rates for dial-up, long-distance service would be reduced 2% to 3%.

■ Pending tariffs covering switched local access services would become effective today, and pending tariffs for special access — local private lines — would become effective "as soon as possible."

■ AT&T would be allowed to increase its private-line rates 5% to 10% and its rates for 800 service 6% to 7%.

■ A local exchange carrier would be allowed to retain their existing 12.75% rate of return, subject to later adjustment.

The Neca proposal contains "elements that could ameliorate, in part, the problems that the pending access tariffs would create," AT&T said, but "it is evident that these changes could not restore AT&T's earnings to reasonable levels."

The International Communications Association (ICA), whose members include many of the nation's largest corporate communications users, charged that pending access tariffs contain a "windfall" worth "as much as $2 billion" to the exchange carriers.

Half comes from the allegedly excessive 12.75% rate of return that local carriers are currently allowed to earn on the circuits, switches and other facilities they use for local access service; the other half comes from assigning excessive costs — technically "revenue requirements" — to these services, the ICA said. The Federal Communi-

cations Commission should lower both. "Substantial reductions" would then be possible not only in the rates charged by exchange carriers, but also in the rates charged by AT&T Communications, Inc. and other long-distance carriers, the association said.

The Ad Hoc Telecommunications Users Committee, another big company communications user group, said that plans to "imply that as long as AT&T's financial position is improved, the switched access tariffs filed on March 15 and 16, 1984 should become effective." This represents "an outrageous disregard for the rights of users to pay only just and reasonable rates," the group added.

NEWS

Growth of home banking linked to micro proliferation

By James Connolly
CW Staff

NEW YORK — Home banking will grow in the coming years, but only as the use of personal computers and home modems grows, according to speakers at the American Bankers Association (ABA) Retail Banking Conference here last week.

The industry observers also claimed that banks have a natural advantage over their competitors in the home banking battle. "We do have the customers already," noted Charles S. Forbes, vice-president of the electronic banking division at Chemical Bank in New York.

Joining Forbes in discussing the future of video banking was Arthur Hill, director of client services for CSP International, who predicted that the number of U.S. home computers will rise from 10 million at the end of 1984 to 60 million in 1990.

But since communications devices are key to services such as home banking, it will be equally important that the proliferation of modems for those computers rises from 5% this year to 20% by the end of the decade,

he added.

Hill emphasized that while consumers will not buy personal computers just for video banking, video banking could give a person one more reason for buying a computer or one more use for an already owned computer.

Speeding the spread of home banking, according to Hill, is the agreement of manufacturers to standardize videotex communications — the North American Presentation-Level Protocol Standard. Further fueling this movement is the likelihood that modem prices will drop and that modems will be built into home computers.

According to Hill, one of the incentives for banks to move into electronic banking is reduced costs. It now costs $1.30 for a single bank teller transaction, Hill said that can be slashed to 18 cents for an automated teller machine (ATM) transaction once ATM transactions increase.

Hill and Forbes predicted that a vital part of video banking will be small business video banking, a service that Forbes said Chemical Bank plans to test in conjunction with its 5,000-user Pronto home banking system. Chemical Bank charges home users $12 per month for the right to use personal computers to pay bills, check account balances and do other basic banking electronically.

Those who will be competing with banks for the video banking dollar include current information providers such as Knight-Ridder Co., operators of a test videotex project; communications organizations such as AT&T; hardware manufacturers; data processing companies such as Automatic Data Processing, Inc.; retailers such as Sears Roebuck & Co.; and financial service companies such as Shearson/American Express, Inc. But the advantage that banks hold is that banks have established multiple relationships with their customers, as opposed to the single-faceted relationships on which competitors have focused, such as charge cards, Forbes said.

Accord reached on hacking bill

ALBANY, N.Y. — New York's attorney general expects the Empire State to become the 21st state in the union to make hacking a crime when a bipartisan bill is passed later this legislative session.

Attorney General Robert B. Abrams was joined by Brooklyn Assemblyman Melvin H. Miller, a Democrat, and State Sen. Ronald B. Stafford, a Republican from Plattsburgh, in announcing bipartisan accord on legislation making it a crime to break into computer systems via remote access.

"The computer is a fact of life in the '80s, and it has created a whole new area of crime. This bill is a very important weapon for prosecutors and the public," Abrams told reporters in announcing the accord.

Passage of the bill is considered certain; Miller and Stafford chair the Codes Committees in the two houses of the New York legislature. No computer crime bill could have hoped to get out of committee without their support.

If signed by Gov. Mario Cuomo, the law would make it a felony to break into computer memories and change or ruin the data contained therein.

Under the bill, a felony conviction would be punishable by up to four years in prison and a fine of $5,000.

New York State currently has no law prohibiting outsiders from breaking into computers through phone lines and remote terminals. Twenty other states have already passed laws to put a stop to hacking.

ATM, POS nets don't guarantee instant savings: speaker

CW AT ABA

By James Connolly
CW Staff

NEW YORK — Shared automated teller machine (ATM) and point-of-sale (POS) terminal networks are inevitable, but do not assure banks of immediate savings, the American Bankers Association (ABA) Retail Banking Conference was told here last week.

The key to marketing such networks is not savings for an institution or a customer, but convenience, stressed Phillip A. Parker, president of First Virginia Services, Inc., owner of the Network Exchange in the Washington, D.C. area. "POS can provide convenience and should be marketed that way," Parker said, noting that computerized POS and ATM services allow residents of Washington, D.C., Maryland and Virginia to shop and bank in the surrounding jurisdictions, which previously had been impossible.

Banks must cut prices on electronic services at the early stages to help "create an environment that encour-

ages use of the cards," Parker said. But, he added, "If you think you are going to get into [POS] to save money, forget it."

Speaking with Parker, Hugh J. Barrett, senior vice-president of First City Bank Corp. of Texas, Inc., added that the proliferation of electronic services will eventually bring down banks' costs to a point of economic returns. The speakers noted that a key basis to be decided in establishing networks is how costs are to be split among the bank that issues a debit or credit card, the merchant and the merchant's own bank. They agreed that, in the end, the customer will foot the bill.

However, the current question for banks is not whether they will share their ATM or POS systems, but with whom. It is unclear whether POS is accelerating awareness of the sharing issue or whether the interest in POS is a result of ATM sharing, Barrett noted.

The ATM environment is much more forgiving than POS, because if an ATM customer finds a terminal not working, he can move to another terminal; with POS, a merchant cannot afford to let a customer leave the store if the network is down, Barrett warned.

Barrett suggested that the ideal network for most institutions would

be designed along the lines of the one in which his bank participates, the Pulse system. He said that when ATMs were growing in popularity, Texas passed a law requiring banks with ATMs to enter sharing agreements.

Both speakers noted that ATM proliferation is nearing the saturation point, where any degree of customer use will not pay for the ATM equipment and communications lines. But they claimed that POS is unlikely to reach such a point because such a high percentage of merchants already use electronic cash registers, which can make the transition to POS easier.

Arrests slow in export case

BOSTON — Only one arrest has been made so far in the case of the seven businessmen and four firms indicted by a federal grand jury here for allegedly shipping millions of dollars worth of sophisticated computers and equipment to the Soviet Union and East Germany in 1981 and 1982.

Leslie Klein, owner of the Canadian firm Eurodata, Inc., was released on $1.25 million bail after his arrest at Miami International Airport earlier this month. Klein claimed the indictment is faulty for charging him with, among other things, failure to obtain a re-export authorization from the U.S. Department of Commerce before shipping U.S.-made computer equipment from Canada to European nations.

"You don't need a re-export license when you ship to West Germany from Canada," Klein said in a telephone interview last week.

The indictment alleges that the computer hardware, most of it from Hewlett-Packard Co. and Digital Equipment Corp., was shipped from the U.S. to Canada, the only nation to which such equipment can travel without a U.S. export license, and from there to West Germany and Switzerland. It was then allegedly shipped on to East Germany and the Soviet Union [CW, April 9].

The two Americans charged in the indictment remain at large. They are Albert C. Besson Jr., vice-president and contract administrator of MLPI Systems, Inc. of Phoenix, and R. Paul Boucher, owner of Young Sales and Service, Inc. of Nashua, N.H.

Also named in the indictment are the two Europeans, Dieter Enderlein and Fred Schiavo.

NEWS

One-vendor approach to OA compatibility called old hat

By Lynn Haber
CW Staff

PHILADELPHIA — The single-vendor approach to office equipment compatibility is quickly becoming a thing of the past as users realize that compatibility is more a function of underlying equipment specifications than brand name, members of Women in Information Processing (WIP) were told here this month.

Speaking at Advance '84, the first annual international conference of WIP, Mark McElroy, a partner in the Wilmington, Del.-based consulting

firm Trasac, McElroy & Co., said that because many vendors protect "their proprietary domains," users have suffered the consequences associated with varying degrees of incompatibility.

"For many users, the approach to equipment compatibility was a single-vendor approach," McElroy said. "That meant confining equipment acquisition to a single brand." But after examining industry trends over the past five years, McElroy concluded that the single-vendor approach to compatibility is changing as the result of an evolution in industry standards that encompasses operating systems, applications software and even hardware.

McElroy based his premise on two underlying assumptions: First, that no one vendor in the office automation marketplace can provide all the solutions; and, second, that the demand by which a company establishes compatibility in the office becomes the substance of that firm's OA strategic plan.

According to McElroy, the operating system is the most significant contribution to industry standards and the creation of compatibility.

"A generic operating system yields a generic programming language which yields generic application software which yields industry compatibility," he said.

So from now on, the underlying

theme to the computer industry will be, according to McElroy, "standardization, not customization, as found in traditional minicomputer and word processing products."

In such a rapidly changing industry, where hardware is becoming a "throwaway" product due to short life span and obsolescence and where the value of user training with specific hardware is much greater than the hardware itself, standardization and the generic world become increasingly important, according to McElroy.

"In the generic world, investments in software training, operating systems and so on are protected by virtue of the ability to move software and data easily from one brand to another," he added.

Wohl outlines challenges facing women, strategies for growth

By Lynn Haber
CW Staff

PHILADELPHIA — "We work in an industry in which change is the only constant. Therefore, we must be flexible and adjust to life if we're to be successful."

Helping to set the theme for Advance '84, the international conference held here recently by Women in Information Processing (WIP), key-

note speaker Amy Wohl outlined many of the challenges that women in the industry confront and presented strategies to meet professional opportunity and growth.

Wohl, president of Advanced Office Concepts Corp. in Bala-Cynwyd, Pa., addressed both personal and professional issues that women must overcome if they are to move ahead in their careers.

Two key elements to professional growth and advancement, Wohl said, are taking risks and accepting the possibility of failure. "Growing is trying those things you might be interested in, even if that means failing," she said. "There are many people who start businesses without knowing what the risks are."

She noted that it is important to realize that all business decisions are not going to be the right decisions, reminding her audience that "making mistakes is not failing."

How is success measured? Wohl

pointed out that while one woman's definition of success is not necessarily the same as another woman's, in today's society money is one well-rooted indication of success. But, she added, it may not be a good way of measuring success.

Being successful both personally and professionally isn't a guaranteed lifetime ticket if the self-learning and growth process is stifled, Wohl cautioned her audience. "It is important to learn over time if what you're doing now is what you want to be doing later on," she said.

NEWS

Harris: Computers unnerve Americans

WASHINGTON, D.C. — Pollster Louis Harris warned Congress recently that while 66% of adult Americans claim to know how to use a computer, a big majority — 77% — are worried about threats that computers pose to their privacy.

These fears about privacy have grown substantially in the last five years, as the use of computers to maintain credit card accounts, monitor loans and administer credit has grown, Harris told the House Subcommittee on Government Information April 4.

"By a massive 84% to 15%, most people are convinced that it would be easy — no problem at all — to put together a file on them that contains their credit information, employment records, phone calls, where they have lived over the past 10 years, their buying habits, their payment records on debts and the trips they've taken," he said.

Fear information sharing

Harris said that the poll he took last fall showed that people fear institutions that possess personal information do not treat it confidentially and are inclined to share it with other institutions.

According to Harris, the public favors the enactment of laws by Congress to regulate the future use of computers. "This indicates once again that the people, in recognizing that restrictions on the use of computers are an important objective, are well ahead of their leaders in the previous subject of freedom and privacy in an open society."

Harris characterized the results of the poll as "startling, to say the least. They must be taken as a warning shot across the bow of the establishment in this country that the people are in a no-nonsense mood about the changes they are coming."

Concerns questioned

While the public sentiment for privacy protection may be evident in the opinion polls, Rep. Glenn English (D-Okla.) wondered whether the concerns may only be "a mile wide and an inch deep."

English, who is the chairman of the subcommittee, said that the Harris poll should be viewed primarily as an early warning signal to Congress.

English went on to say that other members of Congress are not feeling any particular pressure to enact privacy protection laws despite the evidence of public support. "It's just not likely," he maintained.

Multiuser net proves successful

In GSA's four-state federal data coordination effort

By Robert Bort
CW West Coast Bureau

SAN FRANCISCO — The world of office automation has come to a major federal agency here with the successful implementation of a $450,000 local multiuser minicomputer network.

The network installed at the General Services Administration's (GSA) Office of Information Resources Management (OIRM) is made up of 80 workstations shared by senior managers, professionals, technical specialists and four senior secretaries. Connected by a Nestar Systems, Inc. local-area network, the workstations are used for word processing, calculating, electronic mail, filing information and the scheduling and controlling of meetings and projects.

A feasibility study, carried out before the project was launched, estimated that a 17% increase in productivity could be achieved by using such a network. A follow-up survey to estimate the actual productivity increase achieved by the local-area network is due to begin in May.

"The San Francisco project is the only one of its kind in the GSA at this time and was considered as a pilot project for the whole agency," said Edward Messerly, assistant regional administrator for the GSA. "Prior to this project, we didn't know anything about networking, and what we have learned has certainly helped us in adapting our future projects."

The GSA acts as one of the major disseminators of information for federal government agencies. With a budget of about $45 million and an employment roster of about 650 people, the San Francisco office is responsible for coordinating information flow among federal agencies in four states — California, Arizona, Nevada and Hawaii, as well as GSA facilities in Guam.

88,000 telephones

The OIRM here operates 46 telephone switches and 88,000 telephones for government agencies. It also provides word processing and software development services to different departments of the federal government, as well as two federal records centers containing national archives and income tax and historical records.

In setting up the local-area network, GSA requested bids from 150 vendors. Eleven responses were received, including one from Data General Corp., but in the end Nestar's Plan 4000 File Server was chosen because of its greater versatility, Messerly said.

"The criterion that determined our decision was not price competitiveness, but performance characteristics," he explained. "We wanted a network that could run data base management systems, word processing packages, electronic mail . . . one in which we were not locked into the product development cycle of any one manufacturer. By being able to run off-the-shelf software, we have the choice of the greatest number of vendor packages."

The network, which was up and running by July, nine months after being conceived, had an initial configuration of 44 workstations. Each senior manager in OIRM was given an IBM Personal Computer with 256K bytes of random-access memory, a single floppy disk and 6M bytes of local hard disk.

The microcomputers were attached to a local network, which included a 137M-byte File Server, one print server with three dot matrix printers and a Xerox Corp. 2700 laser printer. The GSA system includes a central software library, with an Apple Computer, Inc. Apple IIe micro acting as a print server and Epson America, Inc. FX 100 dot matrix printers attached.

Since the original network was installed, GSA has expanded it to include 80 users and has added an additional File Server and 10 IBM Personal Computers that act as shared workstations.

According to Nestar, the Plan 4000 system can support up to 255 workstations, which may consist of IBM micros, Apple IIs and Apple IIIs. The architecture is a baseband, token-passing network that uses Datapoint Corp.'s Arcnet protocols for the physical and data link layers, combined with Ethernet MS protocols for the network and transport layers. The system supports up to 546M bytes of disk storage with 137M-byte drives.

According to Messerly, the only real barrier in developing the network and increasing productivity is copyright-protected software. "Software described as 'a pain in the neck.'"

Bill to ban medical records access gains support

By Brian McWilliams
CW Washington Bureau

WASHINGTON, D.C. — A bill that would make the unauthorized access of medical records by electronic communications a federal crime gained support in recent hearings before Congress.

The bill specifies that "unauthorized direct access to individual medical records through a telecommunications device" would carry penalties ranging from six months in jail and/or a $1,000 fine to a five-year jail term and/or a $25,000 fine when the illegal access results in injury. It was proposed by Rep. Ron Wyden (D-Ore.).

Congressional concern for the privacy of medical records has been prompted by changes in the payment reimbursement system for Medicare that were ordered by federal regulations and will result in the creation of computerized medical information files that are believed to be vulnerable to unauthorized access and tampering.

Broad support for the legislation, H.R. 4964, surfaced in testimony April 6 before the U.S. House of Representatives Commerce Committee's Health Subcommittee. The American Medical Records Association told the subcommittee that the "increase in the amount of computerized health data, including data needed for immediate treatment decisions, the merging of clinical and financial data for billing under the prospective payment system and the development of large data banks all pose new threats to confidentiality in the health care system."

While the development of large computerized files containing an individual's medical and financial billing data are being pushed as a result of the new Prospective Payment System for Medicare required by government regulations, the merging of the two has just started to take place. Robert W. Coeburn, president of The Common Management Group in Columbia, Md., which provides data processing services to hospitals and other health care clients, told the

subcommittee that hospitals are more likely at the present time to have computerized only their billing systems. "Few as yet computerize, in full, the patient medical record," he said.

Detailing unauthorized access to confidential medical files poses a "significant potential problem" as hospitals rapidly develop computerized systems to handle data, Coeburn said. Most hospitals are instituting security systems restricting user entry, he noted, adding that existing security techniques such as passwords, computer callbacks and access monitoring logs should be adequate.

Coeburn supported the bill, but

recommended that it be expanded to include all patient-specific data maintained in a health care setting, not just medical records.

A dissenting view on the need for legislation as specific as H.R. 4964 came from the National Institutes of Health. Dr. Arnold Pratt, director of its Division of Computer Research and Technology, said the subcommittee that the existing Privacy Act should be strengthened or that H.R. 4964 should be folded into other computer crime legislation now under congressional consideration.

Pratt is "concerned about moving ahead in this area on a piecemeal basis."

The American Hospital Association told the committee it strongly supports the bill, but said the penalties its calls for should distinguish between unauthorized access and misuse of the data.

The penalties outlined in the bill are established in a three-tier system. The first would set a maximum penalty at a six-month jail sentence with a $1,000 fine; the second tier for access and tampering with records would result in a one-year jail term and/or a $5,000 fine; and the third tier would set a five-year jail term and/or a $25,000 fine for access and tampering that result in injury to an individual.

Book to detail micrographics

NEW ROCHELLE, N.Y. — The 1984-85 "International Micrographics Source Book," a nearly 600-page directory of micrographic services and equipment, will be published this summer, according to Microfilm Publishing, Inc.

The directory, which provides a keyword index, lists service companies and their services, manufacturers and dealers, consultants and their specialists, micropublishers and their products and associations and their officers, as well as other organizations in the micrographics field.

The directory's prepublication price is $55; its postpublication price is $65. Quantity discounts are also available. The directory can be obtained from Microfilm Publishing through P.O. Box 313, Wykagyl Station, New Rochelle, N.Y. 10804.

Rockwell International eliminates order management paperwork and ships products faster with a Tandem NonStop Computer System."

right down the line to shipping. And because the system is on-line, other departments have immediate access to this information as well. Accounting, for example, now generates invoices automatically, resulting in much improved cash flow. Manufacturing is saving $175,000 a year in internal freight charges due to the reorganization of ordering and shipping procedures, and the Group as a whole has been able to eliminate more than 300,000 reproduced documents a year.

Other system benefits contributing to improved

customer service include better control of backorder, more accurate pricing information, and the ability to make detailed forecasts of market conditions for planning purposes. The net result is an operation that is helping us achieve some very significant gains in plant productivity.

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TANDEM

NonStop Transaction Processing

County DP manager cleared of wrongdoing

By Jesse Connelly
CW Staff

JACKSON, Miss. — Pocketing almost $7,000 for producing town tax rolls on the county computer wasn't criminal conduct, according to police investigators who looked into the actions of Hinds County Data Processing Manager Ray Palmertree.

"I'm just glad it's over with," said Palmertree, who earlier admitted charging the town of Clinton $6,750 for processing the town tax rolls on Hinds County's Sperry Corp. 90/40 minicomputer here [CW, Jan. 30).

Investigators from the sheriff's office and the district attorney's office told Palmertree and county supervisors last month that he had been cleared of criminal wrongdoing. The supervisors requested a probe after town officials questioned why they were paying to have their taxes processed while other towns received the same service free.

Palmertree, employed by the county since 1973, countered that his predecessor had a similar arrangement with Clinton and that the deal had been approved by county officials "back in the 1970s." He said he had performed the work on his own time.

Although investigators declined comment on the investigative report, the Jackson *Clarion-Ledger* reported that several former county officials

had confirmed Palmertree's claims when interviewed by investigators. Those ex-officials reportedly said Palmertree and his predecessor were allowed to charge the town for services done on their own time because the county didn't have the personnel to process the rolls during regular working hours.

However, the report did not address the question of whether Clinton should continue to pay to have its tax rolls processed. "I expect that between now and July, when the tax rolls are filed, or at least by the end of the calendar year, they are going to do something about it," Palmertree said.

A/E Systems meet scheduled for June 4-7

BALTIMORE — A/E Systems '84, the fifth annual conference on automation and reprographics for design professionals, will be held June 4-7 at the Baltimore Convention Center. It is sponsored by "A/E Systems Report," a monthly newsletter targeting professional design firms.

Representatives from four computer-aided design (CAD) firms will discuss "The Invisible Blackout" in the CAD market: Dr. Malcolm Davies, vice-president and general manager, A,E & C Division, Calma Co.; John W. Hord, vice-president, A-E-C Industry Marketing, Computervision Corp.; Robert E. Thurber, executive vice-president, Intergraph Corp.; and Robert Tuhl, director of CAD and manufacturing marketing in IBM's National Accounts Division.

The registration fee for the conference is $145. More information is available from A/E Systems '84, P.O. Box 11518, Newington, Conn. 06111.

AI among topics of April 29 meet

TORONTO — The Association for Systems Management is holding its annual conference April 29 to May 2 at the Sheraton Center here.

Highlights of the conference will include a seminar on artificial intelligence led by E. Robert Keller of Renaissance International Corp. in Harvard, Mass.; a tutorial on electronic mail by George Sekely of Canadian Pacific, Ltd.; and a seminar on motivation and personnel value systems by Kay Kutchins of the University of Texas.

The registration fee is $395 for members and $495 for nonmembers. More information is available from the Association for Systems Management, 24587 Bagley Road, Cleveland, Ohio 44138.

IIE conference to run May 6-10

CHICAGO — A Software Swap, a demonstration and exchange of software programs, will be held during the Institute of Industrial Engineers' (IIE) 1984 Annual International Industrial Engineering Conference and Show at the Hyatt Regency O'Hare here. Slated for Tuesday, May 8, the swap is sponsored by IIE's Computer and Information Systems Division.

With "Engineering the Future" as the theme, the conference runs May 6-10 and will feature guest speakers, 130 education sessions, plant tours, workshops, a productivity management symposium, preconference seminars, an exhibit show, simulation lab and IIE business meetings.

Registration information is available from IIE, 25 Technology Park/Atlanta, Norcross, Ga. 30092.

NEWS

Germany's 'Fair of Fairs' opens
Hannover plays host to 120 countries

By Susan Blakeney
CW Staff

HANNOVER, West Germany — "The Fair of Fairs" is the name rightfully bestowed upon the Hannover Fair, the massive industrial trade show held here earlier this month.

The sprawling annual event spanned 10 million square feet across seven buildings and hosted 750,000 visitors, effectively doubling the population of this town. People traveled from some 120 countries to attend the fair and visit its 1,700-plus exhibits.

The fair was actually 10 trade shows rolled into one, representing such diverse manufacturing industries as office equipment, data processing, factory equipment and energy.

The largest portion of the show was devoted to information processing technology. Not only was the computer segment of the show the largest in size, but it was also the most popular. Its many exhibit halls were packed each morning.

One industrial equipment maker suggested that the fair was "really turning into a computer show. ... Hardly anybody has visited our booth all day." When asked why his company came to the show at all, the manufacturer said, "If you don't show up, everybody thinks you've gone — as you say — Chapter 11."

The general atmosphere at the show was decidedly upbeat. The West German minister for economic affairs and transport for Lower Saxony, Brigt Breuel, best summed up the prevailing spirit at the show during her keynote address.

She explained, "A short while ago, it was fashionable to point to the allegedly overwhelming backwardness of Europe's economy," Breuel continued. "This we can disregard and apply our talents and strengths and really keep abreast of the competition. The signals to the world's economy are set on 'go.'"

CW photos by S. Blakeney

Site of the Hannover Fair, Hannover, West Germany (above). Attendees examine vendors' newest gear at this industrial trade show (above and at right).

In the words of our users.

NEWS

AUSTRALIA

NORTH SYDNEY — The first installation of IBM's X models of 3080 mainframes is to be made at the Australian Gas Light Co. in early June. A second installation will follow shortly at Sydney County. Council, the city's electrical utility.

SYDNEY — The Commonwealth Banking Corp. has veered from the path of other banks by selecting hardware and software from NCR Corp. instead of Tandem Computers, Inc. in run its electronic funds transfer system. In a deal worth more than $1.9 million, the Commonwealth has bought an NCR 7-8575 dual processor, two NCR 781 communications processors and the electronic rental banking software package. The Commonwealth has also signed Mobil Oil Australia as the first retail user to use its point-of-sale system.

MELBOURNE — Wealthy Asian businessmen are seeking joint venture partnerships with Australian computer companies following a campaign by the Victorian Economic Development Corp. to encourage foreign investment in Australia. The corporation's efforts, in conjunction with those of the federal government's Department of Immigration and Ethnic Affairs, are aimed at attracting successful investors who have a minimum of $278,000 unencumbered capital to invest in Victorian business.

BRAZIL

BRASILIA — The National Security Council, which, in collaboration with the Department of Informatics, regulates activities in the information sector of the economy, is expected to present a proposal for a Brazilian information system to the national Congress. Not mentioned in the proposal is the current policy of market reservation, which reserves the Brazilian market exclusively for Brazilian vendors of minicomputers, microcomputers and peripherals.

RIO DE JANEIRO — Total sales of the Brazilian computer industry increased only 7% last year vs. 51% in 1982, according to figures released by the Brazilian Association of Computers and Peripherals. Until last year, the computer industry was thought to have escaped the economic problems affecting the rest of the country, but the industry's lackluster performance in 1983 indicated that this sector of the economy is apparently no more immune to economic crisis than any other.

CHINA

BEIJING — The computer maintenance center established here in January by Wang Laboratories, Inc. is providing its users with a variety of services, such as installation, maintenance and retailing of circuit boards. The center currently stocks about $100,000 worth of spare parts.

SHENGYANG — Shengyang Computing Institute, which is under the China Academy of Sciences, has developed a time-sharing operating system which the institute said is fully compatible with Unix. In addition to all standard commands and routine programs supported by Unix, the institute's Shenix also supports Fortran 77, C, Basic and Pascal.

BEIJING — Sixteen IBM 4341 processors, two IBM 3081s and two IBM 3083s sold to China last year are scheduled to be delivered in the second half of 1984.

FRANCE

PARIS — Bull-Sems, the subsidiary of Group-Bull that manufactures and markets industrial and scientific data processing systems, has signed an agreement with Ridge Computers of Santa Clara, Calif., for technical, industrial and commercial cooperation. Bull-Sems, which will make a capital investment in Ridge and receive a seat on Ridge's board of directors, gains the right to produce the 32-bit Ridge 32 system in France at its plant at Echyrolles near Grenoble. Production will begin before the end of the year. The agreement also provides for the two companies to extend the 32-bit product line.

JAPAN

SINGAPORE — Sysscon, a subsidiary of Kongsberg Corp. of Norway, has made the first Asian sale of its utility mapping system to the Public Utilities Board, which will use the system to keep a more accurate database of its power lines, water and gas pipes. The sale is valued at $6 million.

PHILIPPINES

MANILA — Lack of data communications facilities and technical expertise have been major factors in the underutilization of computers in the Philippines, according to a study by the Philippine Computer Society. The study showed that not enough technical expertise is available to maximize the potential of installed hardware and that a lack of communications facilities is seriously hampering data transmission to users.

The Telecommunications Revolution is here.

NEWS

WEEK OF MAY 6

MAY 7, WASHINGTON, D.C. — The Second National Conference on DP Software Maintenance Strategies and Opportunities. Contact: U.S. Professional Development Institute Maintenance Conference, Department ELKMOPQR5, 1620 Elton Road, Silver Spring, Md. 20906.

MAY 7-8, SAN FRANCISCO — International Data Corp. (IDC) Micro Guide Conference — Micro Wars Shape Up or Shake Out. Contact: IDC, 5 Speen St., Framingham, Mass. 01701.

MAY 7-8, BOSTON — The Fundamentals of Data Communications. Contact: American Management Associations, 135 W. 50th St., New York, N.Y. 10020.

MAY 7-8, LAS VEGAS — The 2nd International Communications Association Conference. Contact: Norman Sefton, Duke University, 114a Von Dam Building, Durham, N.C. 27706.

MAY 7-9, HOUSTON DOB/TIE Internals, Debugging and Problem Determination. Contact: Goal Systems International, Inc. 5455 N. High St., Columbus, Ohio 43214.

MAY 7-8, NEW YORK — Automating the Office: A Tactical Guide for Success.

Contact: American Management Associations, 135 W. 50th St., New York, N.Y. 10020.

MAY 7-8, PARSIPPANY, N.J. — MVS Dump Debugging. Contact: Chubb Institute, 5 Sylvan Way, Parsippany, N.J. 07054.

MAY 7-9, ARLINGTON, TEXAS — Data Analysis. Contact: QED Information Sciences, Inc., QED Plaza, P.O. Box 181, Wellesley, Mass. 02181.

MAY 7-9, CHICAGO — Personal Computers: Strategies for Managing. Contact: Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

MAY 7-9, DALLAS — Capacity Management Forum. Contact: Institute for Software Engineering, 610 Oakmead Pkwy., Sunnyvale, Calif. 94086.

MAY 7-9, WASHINGTON, D.C. — Strategic Planning for Telecommunications. Contact: Technology Transfer Institute, 741 10th St., Santa Monica, Calif. 90402.

MAY 7-9, INFORMATION Systems: Modeling, Analysis and Planning. Contact: Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

MAY 7-8, ATLANTA — Financial Analysis for Telecommunications Equipment Acquisition. Contact: Business Communications Review, 950 York Road, Hinsdale, Ill. 60521.

MAY 7-9, SAN FRANCISCO — Evaluating, Selecting

and Using Computer Software Packages. Contact: Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

MAY 7-9, NEW YORK — Fundamentals of Data Processing for the Non-DP Executive. Contact: American Management Associations, 135 W. 50th St., New York, N.Y. 10020.

MAY 7-9, SAN FRANCISCO — Computer Performance Measurement and Capacity Planning Tools and Techniques. Contact: Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

MAY 7-8, WASHINGTON, D.C. — Strategic Planning for Telecommunications. Contact: Technology Transfer Institute, 741 10th St., Santa Monica, Calif. 90402.

MAY 7-9, SEATTLE — Introduction to Office Automation: Concepts, Technology and Applications. Contact: Technology Transfer Institute, 741 10th St., Santa Monica, Calif. 90402.

MAY 7-9, CHICAGO — Introduction to Office Automation: Concepts, Technology and Applications. Contact: Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

MAY 7-9, DALLAS — Office Automation: Technology and Integration. Contact: Software Institute of America, Inc., 8 Windsor St., Andover, Mass. 01810. Also being held May 14-16 in Los Angeles.

MAY 7-9, WASHINGTON, D.C. — Data Communications and Networking

for Personal Computers. Contact: Software Institute of America, Inc., 8 Windsor St., Andover, Mass. 01810.

MAY 7-11, ATLANTA — C Language. Contact: Advanced Technology Systems, Inc., 302 Research Drive, Norcross, Ga. 30092.

MAY 7-11, ANNAPOLIS, MD. — How to Develop an Effective Long-Range Data Processing Plan. Contact: Keston Associates, 11317 Old Club Road, Rockville, Md. 20852.

MAY 7-11, DAYTON, OHIO — Quality Assurance and Testing Workshop. Contact: Structured Methods, Inc., 7 W. 18th St., New York, N.Y. 10011.

MAY 7-11, SAN FRANCISCO — Systems Workshop III. Contact: Ware Associates, P.O. Box 948, Groton, Conn. 06340.

MAY 7-11, HOUSTON — Structured Program Design/Maintenance. Contact: Georgakos Carion, Inc. for Commerce and Associates, Inc., 1735 Gage Blvd., Topeka, Kan. 66604.

MAY 7-11, ORLANDO, FLA. — DMS-DB Programming Workshop. Contact: Harris Education Center, 1085 W. Nasa Blvd., Melbourne, Fla. 32919.

MAY 7-11, CHICAGO, N.J. — Systems Analysis. Contact: QED Information Sciences, Inc., QED Plaza, P.O. Box 181, Wellesley, Mass. 02181.

MAY 7-11, NEW YORK — MVS JCL. Contact: Syned, One Park Ave, New York, N.Y. 10016.

MAY 7-11, LOS ANGELES — Information Modeling Workshop. Contact: Yourdon, Inc., 1133 Ave. of the Americas, New York, N.Y. 10036.

MAY 7-11, ST. LOUIS — MVS Diagnostic Techniques. Contact: Center for the Study of Data Processing, Campus Box 1141, Washington University, St. Louis, Mo. 63130.

MAY 7-11, HOUSTON — Project Planning and Control Workshop. Contact: Yourdon, Inc., 1133 Ave. of the Americas, New York, N.Y. 10036.

MAY 7-11, CHICAGO — Structured Analysis/Design Workshop. Contact: Structured Methods, Inc., 7 W. 18th St., New York, N.Y. 10011.

MAY 7-11, MEMPHIS — Structured Analysis and System Specification Workshop. Contact: Yourdon, Inc., 1133 Ave. of the Americas, New York, N.Y. 10036. Also being held May 14-18 in Atlanta.

MAY 7-11, WASHINGTON, D.C. — Structured Analysis and Design Workshop. Contact: Yourdon, Inc.,

1133 Ave. of the Americas, New York, N.Y. 10036. Also being held May 14-18 in Pittsburgh.

MAY 7-11, NEW YORK — Structured Design Workshop. Contact: Yourdon, Inc., 1133 Ave. of the Americas, New York, N.Y. 10036.

MAY 7-11, ATLANTA — Structured Design for Real-Time Systems. Contact: Yourdon, Inc., 1133 Ave. of the Americas, New York, N.Y. 10036. Also being held May 14-18 in New York.

MAY 7-11, TORONTO — CICS Command-Level Programming. Contact: QED Information Sciences, Inc., QED Plaza, P.O. Box 181, Wellesley, Mass. 02181.

MAY 7-11, BOSTON — Systems Workshop II. Contact: Ware Associates, P.O. Box 948, Groton, Conn. 06340.

MAY 7-18, ATLANTA — CICS Command-Level Programming Workshops. Contact: Advanced Technology Systems, Inc., P.O. Box 6800, Norcross, Ga. 30091.

MAY 8-10, NEW YORK — SAS Macro Language Course. Contact: SAS Institute, Inc., P.O. Box 8000, Cary, N.C. 27511.

MAY 8-10, BOSTON — Cost Benefit Analysis. Contact: QED Information Sciences, Inc., QED Plaza, P.O. Box 181, Wellesley, Mass. 02181.

MAY 8-10, CARY, N.C. — SAS for New Computer Users (OS) Course. Contact: SAS Institute, Inc. P.O. Box 8000, Cary, N.C. 27511.

MAY 8-10, NEW YORK — Understanding Modern FAX Systems. Contact: Business Communications Review, 950 York Road, Hinsdale, Ill. 60521.

MAY 8-10, MONTREUX, SWITZERLAND — Computer-Integrated Manufacturing. Contact: Rhonda Gergis, Computer-Aided Manufacturing International, Inc., Suite 1107, 611 Ryan Plaza Drive, Arlington, Texas 76011.

MAY 8-11, PALO ALTO, CALIF. — Hands-On Data Workshop. Contact: Ruth Dordick, Integrated Computer Systems, P.O. Box 45405, 6305 Arizona Place, Los Angeles, Calif. 90045.

MAY 8-11, SAN JOSE — Hands-On Microprocessor Troubleshooting. Contact: Ruth Dordick, Integrated Computer Systems, P.O. Box 45405, 6305 Arizona Place, Los Angeles, Calif. 90045.

MAY 8-11, LOS ANGELES — How to Manage Software Projects. Contact: Ruth Dordick, Integrated Computer Systems, P.O. Box 45405, 6305 Arizona Place, Los Angeles, Calif. 90045.

MAY 9, NEW YORK — Communications Network Design. Contact: Center for Advanced Professional Education, Suite 110, 1820 E Garry St., Santa Ana, Calif. 92705.

MAY 9-10, FRAMING-

HAM, MASS. — Effective
DP Project Management.
Contact: The Center for Man-
agement Development, Bry-
ant College, Smithfield, R.I.
02917.

MAY 9-11, NEW YORK
— Data Communications:
An Introduction to Con-
cepts and Systems. Contact:
Datapro Research Corp.,
1805 Underwood Blvd., Del-
ran, N.J. 08075.

MAY 9-11, NEW YORK
— SAS Processing Center.
Contact: SAS Institute, Inc.,
P.O. Box 8000, Cary, N.C.
27511.

MAY 9-11, NEW YORK
— Office Automation Stra-
tegic Planning, Design and
Implementation. Contact:
Datapro Research Corp.,
1805 Underwood Blvd., Del-
ran, N.J. 08075.

MAY 9-11, NEW YORK
— Financial Information
Systems: Integrating Per-
sonal Computers. Contact:
National Institute for Man-
agement Research, P.O. Box
3727, Santa Monica, Calif.
90403.

MAY 9-11, BOSTON —
Data Communications for
Microcomputers Acquisi-
tion, Application and Imple-
mentation. Contact: Datapro
Research Corp., 1805 Under-
wood Blvd., Delran, N.J.
08075.

MAY 9-11, BOSTON —
Data Base Management Sys-
tems: Concepts and Guide-
lines. Contact: Datapro Re-
search Corp., 1805
Underwood Blvd., Delran,
N.J. 08075.

MAY 9-11, BOSTON —
Data Base Management Sys-
tems: A Comparative
Analysis of General-Pur-
pose Systems. Contact: Da-
tapro Research Corp., 1805
Underwood Blvd., Delran,
N.J. 08075.

MAY 10, NEW YORK —
iBase II. Contact: Software
Institute of America, Inc., 8
Windsor St., Andover, Mass.
01810. Also being held May
14 in Washington, D.C.

MAY 10-11, ARLING-
TON, TEXAS — Data Base
Design. Contact: QED Infor-
mation Science, Inc., QED
Plaza, P.O. Box 181, Welles-
ley, Mass. 02181.

MAY 10-11, DALLAS —
Micro/Personal Computer
Operating Systems (Unix,
Xenix, MS-DOS, CP/M).
Contact: Software Institute
of America, Inc., 8 Windsor
St., Andover, Mass. 01810.

MAY 10-12, CHICAGO —
Byte Computer Show. Con-
tact: Interface Group, Inc.,
300 First Ave., Needham,
Mass. 02194.

MAY 11, NEW YORK —
Lotus 1-2-3. Contact: Soft-
ware Institute of America,
Inc., 8 Windsor St., Andover,
Mass. 01810.

WEEK OF MAY 13

MAY 13-16, WASHING-
TON, D.C. — American
Bankers Association Annu-
al National Operations and

Automation Conference.
Contact: American Bankers
Association, 1120 Connecti-
cut Ave. N.W., Washington,
D.C. 20036.

MAY 13-16, HALIFAX,
NOVA SCOTIA — The
Eighth Annual Conference
for the Canadian Organiza-
tion for the Advancement of
Computers in Health
(Cosich). Contact: Cosich,
10604A 169th St., Edmonton,
Alta., Canada T5P 3X6.

MAY 13-17, ANAHEIM,
CALIF. — Computer Graph-
ics 1984. Contact: National
Computer Graphics Associa-
tion, Suite 601, 2401 Arling-
ton Blvd., Fairfax, Va. 22031.

MAY 14-15, CHICAGO —
Local-Area Networks. Con-
tact: Technica, P.O. Box
10212, 72 Cummings Point
Road, Stamford, Conn.
06904.

MAY 14-15, PHILADEL-
PHIA — Micro vs. Main-
frame. Contact: QED Infor-
mation Sciences, Inc., QED
Plaza, P.O. Box 181, Welles-
ley, Mass. 02181.

MAY 14-15, NEW YORK
— Computer Networks Pro-
tocols, Standards and Com-
patibility. Contact: Datapro
Research Corp., 1805 Under-
wood Blvd., Delran, N.J.
08075.

MAY 14-16, BALTIMORE
— CICS Table Management.
Contact: Advanced Technol-
ogy Systems, Inc., P.O. Box
6808, Norcross, Ga. 30091.

MAY 14-15, ARLING-
TON, TEXAS — Systems
Design. Contact: QED Infor-
mation Science, Inc., QED
Plaza, P.O. Box 181, Welles-
ley, Mass. 02181.

MAY 14-16, WASHING-
TON, D.C. — Evolving to
Electronic Banking. Con-
tact: Technology Transfer In-
stitute, 741 10th St., Santa
Monica, Calif. 90403.

MAY 14-16, CHICAGO —
CICS Internal Architecture.
Contact: Byacd, One Park
Ave., New York, N.Y. 10016.

NEWS

ATM boom seen linked to better security, user appeal

By James Connolly
CW Staff

ORLANDO, Fla. — The growth of automated teller machines (ATM) is linked to better security procedures and to making the machines more appealing to consumers, according to vendors who addressed the recent Electronic Funds Transfer Association Convention here.

The proliferation of ATMs has translated into a growth in the U.S. from four million transactions on 7,100 machines in 1979 to 2.4 billion transactions on 60,000 machines in 1983, reported Jaime Lobroup, vice-president for marketing at Diebold, Inc. Lobroup said that about 36% of all U.S. bank customers now use ATMs, which have helped to change banks from a transaction orientation to a sales orientation as bank business moves off premises.

Lobroup predicted that ATMs will spread throughout workplaces, convenience store/gas station combinations and supermarkets. However, he noted that high-traffic locations such as supermarkets will insist on greater reliability for the systems and that banks will want to save money by subsidizing withdrawal-only machines for full-service machines that require more maintenance.

Meanwhile, David Baker, Fujitsu Systems of America marketing support manager, warned that vendors must make ATM usage easier for the consumer if it is to rise above the 36% mark. "We have to generate a confidence level," he said.

He cited Fujitsu Ltd.'s ATM success in Japan, where the 13 major banks report that 70% of cash withdrawals and 40% of cash deposits are done through ATMs.

Tools that U.S. vendors should use to attract current non-users include color graphics, touch screens, passbook handling, telephones for customers to seek help in operating the machines and cash handling, Baker recommended.

Christopher Williams, director of product marketing for Docutel/Olivetti Corp., said greater market penetration may be obtained by use of ATMs in the workplace. He noted that this concept essentially failed at one time, but that with the opportunity to link ATMs into networks, machines at work are making a comeback.

Robert Fagens, national network coordinator for NCR Corp., predicted that entire payrolls will be moved through ATMs in coming years and that the U.S. government would prefer to make its retirement, welfare and payroll payments through ATMs.

However, Fagens added that the government is awaiting tighter security measures before making a full commitment. Personal identification number systems are too unreliable for the government, and voice recognition systems are too expensive, Fagens said, adding that fingerprint identification systems are unlikely to see widespread ATM use.

IMC meet set for Oct. 2-4

SINGAPORE — The International Information Management Congress (IMC), Infomatics '84, is scheduled for Oct. 2-4 here. It will include seminars on information management and advanced micrographics, along with displays of state-of-the-art and advanced technology.

The Micrographics Society of Singapore will host the event at the Hyatt Regency Hotel in Singapore.

Registration fees are $350 until Aug. 15, $400 after Aug. 15 and $175 for one day. More information is available from IMC '84 through P.O. Box 34404, Bethesda, Md. 20817.

NEWS

Efta members cite prerequisites for business success

By James Connolly
CW Staff

ORLANDO, Fla. — Time, capital investment, more personal computers and a lot of marketing are prerequisites if electronic money systems are to be business — not just technical — successes.

That was a commonly shared view of the Electronic Funds Transfer Association (Efta) members, who met here recently for a four-day convention.

Several members also said they were surprised at how strongly retail chains feel about wresting the control of EFT networks away from banks.

"You kind of think of bankers as taking a leading role, but the retailers are very aggressive," said Joseph Pastore, vice-president for Money Access Center Operations at Philadelphia National Bank. "What they've been saying here is that they want us to give them what they want and not to worry about marketing, that they will take care of that and make it fly."

Pastore noted, however, that only large retailers such as Sears Roebuck & Co. and J.C. Penney have the capital to run their own networks with their own debit cards. He said that regional stores, like smaller banks, will still rely on major networks such

as his bank's Major Access Center for most of their point-of-sale network communications.

While some of those smaller companies, whether retailers or gas station chains, may want their own networks, "when they look at the cost of establishing a network, they will change their minds," Pastore noted.

Several attendees as well as speakers and the challenge for banks will be increasing customer usage of computerized transfers, such as automated teller machines (ATM), home banking and telephone bill-paying. Increasing that usage means strong marketing efforts, perhaps even more than many technically oriented EFT managers realize, observed two officials of Western Union Telegraph Co.

"The public is fickle, and a lot of people forget that. The public really hasn't found a need for those services," said John J. Durkin, Western Union's assistant vice-president for consumer operations. "I know that I personally am quite content writing 25 to 30 checks a month. I haven't felt the need for home banking."

Market booster

Added Mary Ann Sprow, Western Union director of marketing for financial transfer services, "We were told here that technology drives the market. It doesn't. It leads the market." She cited as a misconception some EFT managers' view that the mere existence of a technology will lead customers to demand services.

Sprow linked the future of home banking to services such as videotext — which she said has shown little progress — and to the continued proliferation of home computers. But she and Durkin noted that even with the rapid growth of the personal computer market in recent years, it will take several years for home banking to become viable.

Home banking is another step in the progression that began with ATMs and continued with retail point-of-sale debit cards, now in the startup phase, according to G. Henry Mundt, sales manager for Cirrus Systems, Inc. But, said Mundt, "I don't think anyone has made a business case for home banking. Maybe they will be able to five or seven years from now."

He, too, linked home banking to the spread of the personal computer, saying, "I think it's going to be that people will have a personal computer that they bought for things like keeping track of recipes, and home banking is going to be just one more thing they can use it for."

EDITORIAL

Eating the wounded

To have a winner in any fight, there must also be a loser. In the case of the bitter struggle for control of Management Assistance, Inc., the number of losers may vastly exceed those few winners who emerge from the dust of battle with fatter pocketbooks.

The victory of arbitrageur Asher Edelman and friends [CW, April 9] has already taken its toll on the health of a company that was hurting to start with. The expense to MAI of fighting the successful takeover attempt — more than $6 million — will translate into a quarterly loss. No doubt, that kind of money would have been better spent on items like research and development than on high-ticket lawyers, in vain no less.

But worse may be coming. MAI's Basic Four computer sales, which comprise more than half of the company's nearly $400 million annual revenues, could be seriously impacted by the cloud now hanging over MAI.

This is exactly what Edelman and friends want, because their plan is to sell off MAI's computer business and emphasize service and maintenance — or sell the entire company. In fact, calling the company is also what is beleaguered Raymond Kurshan, MAI president, intends to do.

This is not to say that Edelman's or Kurshan's intended direction for MAI is not the right one for the long-term vitality of the company and its shareholders. But what of the hundreds of MAI customers in the manufacturing and commercial sectors? Will the dividend of their customer loyalty be a line of machines that dies an early death for want of enhancements and new models?

Let's forget about customer loyalty for a moment and talk about proxy wars, a topic dominating an increasing number of corporate annual meetings at computer firms and others. Essentially, the idea is to parlay a minority stock holding, under 15% in Edelman's case, into de facto corporate control by gaining a majority on the board of directors. This is accomplished by soliciting proxies on behalf of "partnerships" controlled by the lead arbitrageur, such as Edelman, then convincing shareholders that the partnership has their best interests in mind.

But the interests any such partnership holds most dear are, of course, its own, and the rules by which both parties end up playing in such a battle echo the "All's fair in love and war" suburbam. Consider that when MAI filed suit against Edelman in January, seeking injunctive relief in the proxy fight, Edelman was already the subject of a year-old federal injunction obtained by the Securities and Exchange Commission. That injunction required Edelman to refrain from filing false and misleading documents with SEC, the result of Edelman's actions during a previous proxy fight in 1982 with Canal-Randolph Corp. Edelman countered with a suit of his own, charging Kurshan with publishing injurious statements about Edelman in two newspapers.

So what's all this mean? For one thing, the hostile takeover atmosphere is fostering several attempts to adopt antitakeover measures. Burroughs Corp. shareholders recently approved sweeping measures, such as staggering directors' terms and creating a new class of stock, to guard against hostile takeovers.

And why not? It's one thing if a company is being ridden into the ground by incompetent management. It's quite another when a group of takeover sharks swim unannounced into calm waters to prey on what they do best — eating the wounded.

"LOOK-ALIKE" MFRS.

IBM

DANGER LOW CLEARANCE

SUPER-MINICOMPUTER MARKET

LETTERS

Where will middle manager be 10 to 15 years from now?

I was interested in the Special Report article "Middle managers leading automation ax" [CW, March 26]. It seems to apply almost exclusively to factory automation.

I expect that in the next 10 to 15 years almost all middle managers in all phases — particularly those in larger firms — will no longer be needed. Most or all of the functions between lower levels and upper levels can and will be done by computers.

That leaves us with the question of what will happen to all of those middle managers.

When the smoke has cleared, the former middle manager class will have either fallen back to production level or will have grown to the top levels.

Wendell Clapp
Certified public accountant
East Wakefield, N.H.

Lesson to be learned: When does warranty begin?

We ran into a problem that might interest *Computerworld's* readers. One of our remote sites had problems with its terminals, and we determined that the modems were at fault. We called the manufacturer, which informed us that both units would need to be serviced. We wanted to confirm that these units were still under warranty. Both modems were purchased July 1983, with a one-year warranty. We were informed that the warranty began on the date the board was completed by manufacturing. Both boards were dated August 1982. Since the modems had been sitting on the shelf for 11 months before we purchased them, we had essentially no warranty.

Kevin Telford
Technical support
Van Kampen Merritt, Inc.
Naperville, Ill.

VIEWPOINT

Superstar trek

LIGHT ON SCIENCE
Charles P. Lecht

Although the number of supercomputers in the U.S. is very small, our fear for the powers engendered through their usage is very great. About 100 of the millions of computer systems in America's installed base can qualify as a supercomputer, and as a percentage of its 12-odd value, they account for a dismal .1% or less. The elite group includes systems like Cray Research Inc.'s Cray X-MP, Denelcor, Inc.'s Heterogeneous Element Processor and Control Data Corp.'s 2XX systems.

It seems strange that there has been so little investment in the creation of supercomputer systems when the benefits of our doing so are so great. Perhaps the most overriding reason is the most obvious — very few companies can make them; too few people know how to use them.

But talk about return on investment! One better fighter plane design obtained through supercomputer usage can save American taxpayers many times the cost of its discovery — and priceless lives, too. The smallest improvements in safety in the peaceful uses of atomic energy will do no less; through the usage of supercomputers, calamities like Three Mile Island or worse could be avoided. And, unlike other capital layouts, the assets that produced the innovation — the supercomputer, its staff and facilities — remain as good as new, if not better, for the experience. Using the most conservative investment criteria applied by Wall Street's most cautious investors, a supercomputer is a super investment, maybe even better than a TV station or a satellite.

Investment opportunity

As you may surmise, I believe the competent supercomputer companies to be a great investment opportunity. The demand for more supercomputer facilities in government, education and just plain old big business will grow much faster than most analysts think. That the cost of these giants is, in comparison to today's large mainframes, high reflects, among other things, serious supply shortages. I've yet to attend a supercomputer meeting

(or any other for that matter) at which anyone has ever convincingly demonstrated the contrary. The long waiting period for Cray's most advanced system, CDC's underwriting of Electronic Technology Associates and the emergence of Microelectronics Computer Corp., Star Technologies, Inc., Elxsi Corp., Denelcor and other such developments confirm our belief in the commercial viability of supercomputer systems. Our government's deep involvement confirms our belief in their essentiality for our national health and welfare.

Even though a single system may cost four or five times that of today's widely used and largest commercial mainframes, its cost as a percentage of our gross national product has changed over the past 30 years or so. The Univac Livermore Atomic Research Computer (Larc), yesteryear's supercomputer, cost $30 million dollars each — in 1960 dollars! If you had invested the cost of one Larc at 10% interest compounded per annum, it would have produced $300 million in today's dollars. In comparison, the cost of one Cray X-MP, say $8 million, is an astounding bargain without even considering that it would take thousands of Larcs to equal its megaflop performance.

The meeting held at Balsams Lodge, Glendon Beach, Ore., was held to explore the means of extending today's supercomputer power through the application of parallel processor technologies, a stant that, at its foundation, is motivated by shortages in the supercomputer power we need to address today's pressing problems. It is true that other factors, some limiting in the creation of improved performance very large-scale integrated chips and some emanating from the discovery of new computational techniques, would prompt us to investigate parallel processing methodologies anyway. But we know that the results achieved could never fully overcome the difficulties of current research, development and manufacturing of supercomputers needed to alleviate their shortage significantly. Ten cannot tie 35 cars together to make an all-purpose tractor-trailer. Anyway, it should come as no surprise that the biggest problem facing the scientific community simply are not solvable by any single method or by one that is well known.

The parallel processing conference at Glendon was an educational and exciting event. The assem-

bled group included such supercomputer superstars as B. Smith of Denelcor, K. Butcher of Goodyear Research, A. Beller of IBM, E. Marce of Fujitsi Ltd. and many other stars known for fantastic achievements in science. The lectures were dynamic, and interest was very high. The intellectual friendship and honest discourse between the members of this group was a pleasure to observe. Experiences like these refresh and energize their participants' minds in a manner you might expect would occur on their emergence from a scientific sauna. Our Department of Energy deserves our praise for sponsoring this meaningful event.

Upon return from the conference, I've had cause to think about America's supercomputer efforts in general and the struggle our senior scientists have had to get these moving, especially those in our government. This group, upon whose shoulders falls the responsibility of most supercomputer usage in America, is too often viewed by our bureaucratic public as self-indulgent, if not downright sinful, in its dedication to a science, the tools of which are so expensive and abstract. To those government scientists who forfeited the possibility of ever achieving real wealth because of an unadulterated idealism expressed through preserving service to America and science, these views are particularly saddening. Our praise and encouragement is called for instead. That I find myself in the unaccustomed position of praising anything underscores the magnitude of my empathy with this group. Those of you who regularly read this column know that were the contrary the case, shyness wouldn't have prevented me from expressing it.

Government service in science

I worry about the future of our government service in science. The evident disparity between expense account reimbursements the employees of the government and those outside of it in attending any conference just begins to suggest the gap dividing public service scientists and their private sector cohorts in all areas of technology, from micro to macro systems. Had the Oregon conference been sponsored by private industry, it would have been held in Palm Springs, Calif. Salishan is for the summer. This gives no pause for reflection.

Word processing goals of aspiring writers

HUMAN CONNECTION
Jack Stone

A few weeks ago, while instructing a class of non-DP professionals in office automation basics, I waxed on rather eloquently and in a prideful way about the capacity of my personal computer speller package to generate a form of a concordance, an alphabet of key words along with their frequencies of occurrence and the associated passages in which the words appeared. I mentioned that my package is early generational in the sense that the processing is automatic (except I am forced to use conventional word processing search techniques to identify the passage).

"Why would anyone care about how many times a particular word appears in some text?" a bright, but outspoken, student asked.

I didn't expect the question because I erroneously thought that everyone was aware of word and content analysis techniques. But I came through with this explanation: If one's material is restricted to routine business correspondence, engineering reports and studies or systems documentation, it is hard to make textual outpourings sparkle. However, in prose less concrete leanings and in writing an idea less technically oriented, stylistics play a

much more important role.

For example, a lawful writing technique is the varied use of synonyms for significant words, an action that reduces repetition and thereby tends to intensify reader interest. It is the concordance that provides the data needed by the author to make the choices.

I went back to class and expanded the answer along these general lines: With the continuing and rapid hardware advances, coupled with dramatically falling costs — particularly mass storage costs — we must recognize that the software and data files floating around these days to aid writers are mere harbingers of things to come.

Capabilities, productivity tools

Some systems capabilities and productivity tools that writers could dearly use at their fingertips and that are not, I hope, idle fantasies, but will be practical and economically justifiable not too far down the technology road, are:

● Multiple Spelling Lists. A range of optional, user-verifiable word lists supplied by vendors for spelic programs that cover areas other than common English words, for example, foreign, geographical, scientific, engineering and biographical words and phrases plus a processing function that allows for temporary concatenation of multiple lists for a specific spelling task.

● On-Line Dictionary. Impressive gains have al-

ready been made in this area, including hyphenation and homonym dictionaries; dictionary probes using wild-card letters to provide entries as the word level; and dictionary lookups to find words similar in spelling to a target word. The next step is the expansion of a word probed by the author into its complete dictionary entry. Information presented at various levels of detail would include variant spellings and forms, alternative parts of speech and definitions, homographs, prefixes and suffixes; inflected forms; idiomatic phrases; and run-in forms.

● On-Line Thesaurus. Synonyms and antonyms of the selected word with the detail explanation of the list into complete dictionary definitions.

● On-Line Grammar Analyzer and Synthesizer. Automatic analysis of sentences and paragraphs to detect errors of structure and punctuation, plus the ability to synthesize alternative forms for the author's consideration.

System needs to support these capabilities include persistent storage, a very fast processor, such as a 32-bit plus, a multitasking operating system to perform time-consuming search and analysis tasks in background mode; and an extremely simple user interface to avoid frightening the non-DP-oriented professional writer away from the machine altogether.

Letters to Stone should be addressed to him at P.O. Box 33490, Washington, D.C. 20033.

Relational vs. network/hierarchical DBMS

Examining the issue from a user's point of view

READER'S
PLATFORM
Pawel Crossy

As pointed out by E.F. Codd and C.J. Date in their Reader's Platform article "The real strengths of relational systems: Two experts review the performance issue" [CW, Feb. 6], the main contention in William H. Inmon's In Depth article "What price relational?" [CW, Nov. 28] is that "poor performance is, in fact, inherent to the relational environment." Codd and Date clarified several of Inmon's statements and primarily concentrated on identifying the strengths of relational systems at the machine and conceptual levels. As an applications developer and data base administrator, I believe that several practical considerations related to our use of a relational data base management system (DBMS).

Our primary application is an information system for commercial real estate investors accessing a 135M-byte data base using a Digital Equipment Corp. VAX-11/780 32-bit minicomputer. The nature of the commercial real estate investor demands that our application program be user-friendly, user-flexible and fast. We achieve a high degree of user friendliness through a third-party, terminal-independent, forms management system. User flexibility and acceptable response time are achieved through our relational DBMS.

In his article, Inmon states that the expense of system flexibility is "having to search for data in diverse places."

If a relational query is properly constructed and the data base has been normalized with primary and secondary indexes, searching in diverse places is not a problem.

What may become a problem is retrieving from diverse locations, which can be minimized by using contiguous disk storage and/or spreading the data base over several physical devices. In fact, proper data base design and indexing can reduce some so-called "long-running" activities (for example, highest account balance from the payroll data base where accounts of executives are considered) to "short-running" activities.

In his comparison of demands on system resources, Inmon claims that the typical relational environment will queue short-running activities behind long-running activities. It appears that the assignment of system resources should be attributed to the machine operating system rather than the relational DBMS.

At our installation, on a heavily loaded CPU (greater than 95% utilization), there is no problem with long-running activities superceding short-running activities.

Assuming equal priorities, a simple balanced retrieval executes long before a full data base scan. Obviously, assigning a higher priority to the long-running activity will change the results somewhat, but even then the low-priority, short-running activity beats the long-running activity to completion.

Data base integrity

Another area in which Inmon is in error is his criticism concerning data base integrity. Any process that performs data-sensitive calculations should execute, as a matter of normal procedure, an exclusive lock on the table being utilized. This provides the possibility of any mid-process change to the table that would invalidate the results. The fact that the results may be out of date because the next process updates the table is a

scheduling problem, not a relational DBMS problem.

All DBMS packages devise somewhat from the pure theoretical constructs on which they are based. Inmon's theoretical concerns may be valid, and the reader should address Codd and Date's article to weigh those aspects further. From a pragmatic, user viewpoint, though, there is no performance penalty in the relational environment if the data base is properly designed and indexed, and applications are similarly optimal in their design. Our commercial real estate investors application would be unable to provide nearly as much user flexibility and speed in a network/hierarchical environment. ‡

Crossy is geographic information systems coordinator for Data Research and Applications, Inc. in Knoxville, Tenn.

All our talk about threats to the avenue of America's supercomputer superiority be emanating from abroad may cause us to overlook emerging threats at home inadvertently, for example, discouragement of our future supercomputer scientists from entering our government service — the same government to which the private supercomputer industry has been hawking its need for greater subsidization by limiting their professional opportunities (as well as increase). Sponsorship of congresses like Salishan can go a long way to alleviate this. In the past few years, our government has increased such sponsorship, but this alone will not be enough.

If someone is smart enough to work in the supercomputer field, he may be smart enough to deduce that our government scientists face work that is as demanding as any in the private sector, but is devoid of the stock options, profit sharing and comparable income potential available in our newly emerging supercomputer companies. It follows that with the demand for supercomputer professionals exceeding their supply, our government will find it tough sledding attracting and keeping new superstar supercomputer scientists, who will be inclined to test ta private industry. More incentives will be required, including public recognition for achievements of the kind given private sector scientists who make it big in industry. With our government's role in supercomputer development growing, we must take care to ensure that it has the scientific strength to succeed. Failure to do so will cause our falling behind in the world race to produce supercomputer power, not through improvements abroad, but decay at home.

This is the second in a three-part series.

Lecht is chairman of Lecht Sciences, Inc., a New York-based think tank specializing in computer and communications technologies.

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DP management: coping with personality changes

READER'S PLATFORM
Jim Lowe

To be a good manager in the data processing world, one must have qualities that cannot be found in a textbook. The manager must gain experiences through the years by being exposed to a great number of systems, computers and people.

The data processing manager sees and deals with a host of different personalities each day. Not only does he deal with the somewhat unusual personalities of technical people, but the data processing manager must also deal with changes in personalities that come from user departments, peers, upper management, vendors, sales representatives, customer engineers and headhunters.

In fact, personalities can cause one not to see the real issue at hand. In order to get around this problem, the manager must be able to deal with the employee by switching to the personality at hand, that is, each time the employee's personality changes, the manager must recognize the change and deal with the issue accordingly.

Daily personality changes are caused by many different reasons, including job stress, constant deadlines that must be met, personal matters and the lack of upward mobility in one's career.

The data processing department today is the nucleus of the company. The success of the data processing manager depends on how long he can keep the user departments happy, stay within budget, convince upper management to spend money for new hardware and software when needed, maintain a good technical staff and be able to bring systems in on time.

Underlining obstacles

All of the above deals with underlining obstacles — power failure, mistakes of computer operators, the unexpected resignation of a key technical person or a slowdown in development because of a psychological personality change in motivation of your development team — that might surface at any time. Such obstacles have a profound impact on the data processing manager. At this time, the manager must make adjustments and conduct maneuvers that will lead him to recover from the situation.

The goal of a manager in any profession is the same: to do the job that has been defined by the company. Now he goes about this with the resources at his disposal will vary from manager to manager and company to company.

If he has the financial backing and the support of upper management, the manager's job becomes much easier, and the goal is more likely to be obtained. However, a variance in any one of these two crucial elements will cause problems.

A proper data processing department is expensive in itself, the department is a service department. Its production efforts are hidden within the walls of a CPU. Therefore, the end product has far less to do with quantity than it does with the steps necessary to arrive at the results.

The true understanding of each efforts can only be known to people who work in the field of data processing or who have had extensive data processing training or education in the field of data processing.

Lowe is information systems director at A.C. Transit in Oakland, Calif.

SOFTWARE & SERVICES

'Gnosis' project addresses security

In a couple of years, the IBM main-frame operating system arena could begin to get crowded. Coming just a few months after Amdahl Corp.'s confirmation that it is working on an "alternative" to IBM's 3090 operating system [CW, Dec. 19], Tymshare, Inc. has acknowledged that it too is planning a security-oriented operating system for the big machines.

Gnosis, as the project is code-named, attacks the soft underbelly that most operating systems expose in the security area. According to Norman Hardy, a senior scientist at Tymshare, conventional operating systems and security procedures still do not protect against unscrupulous programmers who can write hidden procedures into their code that bypasses conventional security. Gnosis is a "capability-based and object-supported" system that essentially shields programs and data from unauthorized access.

Gnosis will pose no threat to MVS, but Tymshare believes it could be popular with firms that provide on-line data bases or time-sharing and with large, multidivisional financial institutions. "This is oriented toward facilities where there are programmers with differing loyalties trying to work together," Hardy said. The product has been under development since 1976, but will probably not be available for another two years, he said. Price and packaging have not been determined.

The problem Gnosis is intended to address most often occurs with programs

Sensible software selection
Techniques offered to enhance the evaluation process

The following article first appeared in ICP Interface Administrative & Accounting, copyright May 1983.

By Rayya Gorga
Special to CW

Approaches to software evaluation and selection range from extensive systematic processes to relying on consultants to simple guidelines. Regardless of the approach, however, a few commonsense techniques can strengthen the selection process.

Functions performed by software products affect areas and activities which are central to an operation. The critical nature of the functions and the activities that will be affected should dictate the degree of management participation in the selection process.

Gorga is vice-president of financial information for the Applications Software Division of University Computing Co. in Dallas, Texas.

If a task force or selection committee is formed to evaluate software, people with the appropriate skills and backgrounds must be included. Additionally, each member of the committee should be given specific responsibility, authority and schedule.

Most software evaluation and selection processes involve some sort of specification development. A prerequisite to this is recognizing and understanding the requirements, including the requirements in the specifications.

Per example, if specifications are developed solely on the assumption that a particular system is required, real needs and objectives may be overlooked. If specifications are developed with knowledge of the objectives to be addressed, the specifications will focus more clearly on real needs.

It's also best to avoid an "outside in" approach when developing product specifications, that is, making wish lists from

Ingres/VAX/VMS Version 3.0 boasts greater application generation ability

BERKELEY, Calif. — Relational Technology, Inc. (RTI) has extended the application generation capabilities of its Ingres data base management system (DBMS) in a new release due for shipment this summer.

Ingres/VAX/VMS Version 3.0 includes Applications-By-Forms+ (ABF+) and Query-By-Forms+ (QBF+), two additional tools in RTI's Visual Programming kit that are said virtually to eliminate coding in the creation of applications and query routines. The products are oriented toward end users and are based on fill-in-the-blank forms. Users reportedly can perform queries spanning multiple rows and tables and execute transaction-type query/updates twice as fast as in previous

versions of Ingres.

ABF+ lets the user integrate and link modules developed with Ingres' forms editor, query-update tool, report generators and graphics subsystems without coding, an RTI spokesman said. The application is structured as a hierarchy of forms and database procedures. Applications are built using the frames, and custom code can be inserted using RTI's Operations Specifications Language (OSL).

OSL allows data base access through Ingres' Quel query language and integrates it with forms control. The combination of ABF+ and OSL allows users to build command menus, designate conditional flow

Study: AI may blossom soon if cultivated by commercial market

By Paul Gillin
CW Staff

CAMBRIDGE, Mass. — Artificial intelligence-based systems will become commercially viable sooner than is commonly predicted, growing to as much as a $1.3 billion market by 1988, according to a report recently released by Bratthe Research Corp. However, *Artificial Intelligence Computers and Software: Technology and Market Trends* said that such rosy predictions could fall flat if the commercial market fails to invest in the technology.

The study pointed to the use of bit-mapped displays, mouses, windows, icons and object-based programming as technologies that have emerged from AI research and have already had a market impact. In addition, improving price-performance ratios will make Lisp-based processors viable in the near future. Lisp is likely to remain the standard language of AI, the survey stated. Lisp eliminates the need for separate operating systems,

applications systems and data base management systems. The report predicted that the market for Lisp machines and pure AI applications will top $1 billion by 1988.

Dedicated Lisp hardware, such as Xerox Corp.'s Dandelion, Symbolics, Inc.'s 3600 and Lisp Machine, Inc.'s Lambda, are generally thought to be the best methods of organizing and presenting AI software; however, they are fairly expensive and of questionable reliability, the report said. Inexpensive 32-bit microprocessors may soon begin to supplant performance levels comparable to the dedicated machines, but, conversely, most lack adequate software.

There is a great deal of AI research now going on in academic institutions and in government. But this market could become saturated if commercial products do not emerge within a few years, the study said. But the authors believe that the commercial success of AI interfaces could lead to the development of a

breakthrough in a commercial product. But a number of barriers must be overcome first.

For one thing, the machines are comparatively expensive, according to the survey. Another factor is the shortage of programmers who are trained in the complex syntax of an AI language. A third barrier to conclusion about what AI really is. Unrealistic expectations about AI capabilities present the risk that management may overlook immediate opportunities in pursuit of unrealistic goals, the survey stated. A final barrier is the lack of marketing experience available in the AI community.

For now, AI workstations appear viable in three major areas, the study said. The first is as software development tools. AI workstations can improve programmer productivity by a factor of 20 compared to Cobol. The second area is in design, simulation and testing of complex systems and circuits. "This is the way the CAD/

CAM [computer-assisted design and manufacturing] market evolved, and it is starting to happen in [the AI] market," the survey said.

Possibly the largest market will be in information management and decision support systems, in which Lisp machines can greatly automate data integration and manipulation. However, the report predicted that the amount of effort required to assimilate these products will make this one of the last markets to develop.

The survey puts forth a best-case and worst-case scenario for AI installations. Should the technology play in the domain of specialized research and development, sales will grow from $44.3 million in 1984 to $400 million in 1988. However, if a landmark commercial AI product does appear on the market, sales will grow from $67.5 million in 1984 to $1.3 billion in 1988.

The study costs $6,000 from Bratthe Research, Athmaroon Boom, 215 First St., Cambridge, Mass. 02142.

CFsoftware unveils IBM micro-to-mainframe link

CHICAGO — CFsoftware, Inc. has announced a microcomputer-to-mainframe link package that reportedly connects IBM Personal Computers to IBM mainframes running IBM's CICS teleprocessing monitor.

A spokesman said the PComainframe package features upload and download file transfer capabilities, data selection and nonsummarization, automatic formatting for spreadsheets, data bases, text and binary data, six levels of security, centralized control and hard-copy and on-line audit trails.

The micro-mainframe link is said to download selected records and fields directly from mainframe files to an IBM Personal Computer, making the data available for use in most popular spreadsheet programs and other micro applications.

The vendor spokesman said many applications on the Personal Comput-er can share information contained in a central data base, and PComainframe allows data created or modified on the micro to be uploaded to mainframe data files or special user libraries.

The package's uploading feature reportedly also allows sharing of data between Personal Computers, storing of micro-created data for future retrieval and uploading to the mainframe without re-entry of data. Ver-sions of PComainframe operate under all current IBM operating systems that support CICS, including DOS/VSE, OS/VS1 and MVS, according to the vendor.

PComainframe is priced at $4,500 per mainframe, including three Personal Computer packages. Each additional Personal Computer package is priced at $300 from CFsoftware, Suite 1010, 151 N. Michigan Ave., Chicago, Ill. 60601.

Oracle offers DBMS version for AT&T 3B20

MENLO PARK, Calif. — Oracle Corp. has introduced a version of its Oracle relational data base management system (DBMS) for AT&T's 3B20 minicomputer under Unix System V.

According to a spokesman, the transport of Oracle to the 3B20 under the Unix System V operating system required modification of only 4% of the software's more than 2,000 modules.

The Oracle relational DBMS is also compatible with IBM's SQL/DS.

Oracle features a set of software development tools, including a screen-oriented interactive application generator, a report writer, a document preparation system and an integrated data dictionary, the vendor said.

Oracle runs on a variety of hardware systems, including IBM mainframes, Digital Equipment Corp. VAX-11 and other minicomputers and a variety of microcomputers, the spokesman said.

The Oracle relational DBMS on the AT&T 3B20 minicomputer is priced at $48,000.

The version of the Oracle DBMS for the AT&T minicomputer is available from Oracle, which is located at 2710 Sand Hill Road, Menlo Park, Calif. 94025.

Cincom unleashes enhanced TIS DBMS
Said to improve Logical User View system

CINCINNATI — Cincom Systems, Inc. has announced an enhanced version of its TIS integrated relational data base management and application support system.

The enhancements to Release 1.5 of TIS reportedly improve the performance of the TIS Logical User View (LUV) system, which translates programs and users from data structures. Features of Release 1.5 include automatic data integrity control, global logical user views, global view capabilities, improved directory maintenance facilities and an on-line logical view test utility.

The enhanced version of TIS is said to allow a field within a view to be equated to any number of additional fields within the same view. When a program updates a field, all identical fields within the view are updated automatically by LUV, a spokesman said. In addition, performance improvements in the TIS DBMS component include record holding, "quiet" processing, "commit" overlap, rewriting the record-holding queue, buffer flushing, task dispatching and Event Control Block list handling.

The spokesman said that TIS uses between 18% and 25% less CPU time than Cincom's Total DBMS Version 8.1 when performing identical functions.

TIS Release 1.5 runs on IBM processors under IBM's DOS, OS and MVS operating systems. TIS with Cincom's Data Communications Support system can be purchased for $250,180 or leased for $10,424 monthly. TIS with IBM CICS support is priced at $180,750. Monthly leases are available for $7,532.

Cincom Systems is located at 2300 Montana Ave., Cincinnati, Ohio 45211.

Goal Systems' security system for IBM CICS touts adaptability to changing environments

COLUMBUS, Ohio — Goal Systems International, Inc. has announced an IBM CICS security system that can be customized and quickly modified to meet changing environments.

Alert/CICS provides security at the transaction, file, program and map levels, with definitions at the terminal, operator and system levels. Features include random generation and automatic distribution of passwords; security for IBM DL/1 data bases; security definitions by time of day and day of week; automatic clearing and sign-off of terminals after a specified period of time; and audit trail logging facilities, which can be displayed through both batch and on-line reports.

System resource security controls transactions and the inquiry and update of files. Terminal and operator resource security identifies who is using the system and controls and records any unauthorized activity, a spokesman said. User exits are pro-vided to allow custom tailoring, the vendor said.

Available immediately, the product is priced at $12,180 for a permanent license or $300/mo for a three-year renewable license under IBM's DOS operating system. Under IBM's DOS, the prices are $9,100 for a permanent license or $226/mo for a three-year renewable license.

More information is available from Goal Systems, located at 5455 N. High St., Columbus, Ohio 43214.

Honeywell licensed to market Oracle DBMS for DPS 6 series

WALTHAM, Mass. — Honeywell, Inc. and Oracle Corp. have signed a nonexclusive worldwide license agreement under which Honeywell will offer the Oracle relational data base management system (DBMS) on Honeywell's DPS 6 family of microcomputer, minicomputer and superminicomputer systems.

The agreement also contains provisions for Honeywell to market Oracle on its large-scale systems, including the DPS 7, DPS 8, Level/66, Level/68 and DPS 88 mainframes. A Honeywell spokesman said the DBMS probably would be made available on the large systems; however, the spokesman would not offer pricing or availability information on those models.

Oracle is compatible with IBM's SQL/DS query language and is capable of running on a wide range of hardware.

Software development tools

Software development tools included with Oracle are a screen-oriented interactive application generator, report writer, document preparation system and integrated data dictionary, according to the vendor spokesman.

Final prices have not been set, but Oracle is expected to cost less than $1,000 on the microprocessor-based Honeywell systems and less than $25,000 on the superminis, the spokesman said.

More information is available from Honeywell, which is located at 200 Smith St., Waltham, Mass. 02154.

SOFTWARE & SERVICES

SYSTEMS SOFTWARE

GROUP OPERATIONS, INC.
Superstructure
enhancements

Group Operations, Inc. has announced enhancements to its Superstructure package.

Superstructure is said to convert automatically "unshielded" code Cobol into structured Cobol. The enhanced package now supports IBM OS/S command-level and DOS macro-level and Cobol Software, Inc. DMS and EMS/DC Cobol programs.

The system is said to be a cost-effective alternative to rewriting manually unstructured programs.

Superstructure is available for Qid and compatible processors under all IBM OS and OS/VS operating systems. Superstructure prices range from $35,000 to $45,000.

Group Operations, Suite 899, 1110 Vermont Ave. N.W., Washington, D.C. 20005.

HONEYWELL, INC.
System-Directed Editor

Honeywell, Inc. has introduced the System-Directed Editor (SDE), which provides an interactive programming environment for writing, editing and executing Cobol source programs.

According to the vendor, the SDE supports the creation of Cobol 74 programs in Honeywell's Cobol S environment on its large-scale computer systems.

The shorthand method of the SDE reduces the amount of code that a programmer must enter and checks for format and syntax errors, the company said.

The release of the SDE for Cobol is set for July. It will be available for a monthly license fee of $225, with a minimum of 12 months.

Honeywell, P.O. Box 6000/A-79, Phoenix, Ariz. 85066.

RAXCO, INC.
Rabbit-5

Raxco, Inc. has introduced the Rabbit-5 image monitoring system designed for resource management on Digital Equipment Corp. VAX-11/750 and 11/780 computers.

With Rabbit-5, a system manager can locate high-resource consumption areas within a program, Raxco said. A histogram display indicates which routine and which lines in a routine are consuming excessive system resources by noting the amount of time spent in the various scheduling states and processor modes for the pixel images. The system designer can then optimize the specified modules or subroutines to improve the program

and system performance, the company explained.

Both the sampling rate and display parameter may be dynamically modified. Rabbit-5 does not require a system or system modification, Raxco noted.

The Rabbit-5 image monitoring system is available for a purchase price of $3,995, plus options, or may be leased for $350/mo.

Raxco, 1370 Piccard Drive, Rockville, Md. 20850.

SPECIALIZED SOFTWARE, INC.
Table Management System

Specialized Software, Inc. has released an enhanced version of its Table Management System that operates on IBM mainframe computers using IBM's CICS or IMS/DC teleprocessing monitors.

This system is said to enable users to define files or tables with a simplified interactive procedure. Immediately after defining a file, the user can begin accessing it on-line with a generalized file maintenance program that allows add, change, delete and browse functions.

On-line file maintenance screens can also be customized by using the optional screen painting facility, which allows nontechnical users to design the appearance of the screen dynamically, the company said.

Initial license fee for the

'OS version is $25,000, with an additional $10,000 for the screen painting option. The DOS version is $15,000, plus $5,000 for screen painting.

Specialized Software, 397 Union St., South Natick, Mass. 01760.

JEFFREY J. SILDEN SOFTWARE
Lease, Trader and Pilot

Jeffrey J. Silden Software has announced three pack-

ages for IBM's System/34 minicomputer.

Laser reportedly traces, spots and corrects logical-device address errors interactively. It costs $160.

Tenfor allows the user to sign off idle terminals from the system console in less than five seconds, the vendor said.

Tenfor reportedly costs $120.

Pilot is said to provide users with the capability to vary off and re-accommodate lines and/or terminals from a procedure.

Combining the power of Tenfor and Pilot allows dedicated procedures to be run completely unattended, eliminating the need for overtime operator, the vendor claimed.

Pilot costs $285, the vendor said.

Jeffrey J. Siliden Software, Suite 100, 21600 Oxfp St., Woodland Hills, Calif. 91367.

IBM OFFICE SYSTEMS DIVISION

Document management package

IBM Office Systems Division has introduced two software packages for document retrieval and management for users of IBM 4300 systems.

One package reportedly is designed for the IBM 4300 with the IBM DOS/VSE operating system and IBM's OCR.

The other package also utilizes the IBM 4300 and OCR, but requires IBM's OS/MVS operating system.

The vendor claimed that the software can reduce labor and retrieval time by up to 90%, compared with conventional document-based programs. The spooler retrieval is made possible by a procedure in which a master record file is called up on a CRT screen. One keystroke then provides a list of all the documents associated with that master record, according to the vendor.

The packages are priced at $35,500.

IBM Office Systems Division, P.O. Box 50000, St. Paul, Minn. 55102.

HONEYWELL, INC.

Multics Release 10.2

Honeywell, Inc. has introduced an update to its Multics operating system for the DPS 8M line of large-scale computers.

According to the vendor, features of the new release include a report writer and enhancements to the Fortran language processor and minicomdata software.

An improvement to the video terminal manager helps simplify the ability to generate and interface menus. A new tutorial system has been added to assist new users with basic Multics functions.

Release 10.2 incorporates a report writer for the Logical Inquiry and Update System (Linus), which reportedly enables users to produce ad hoc or fully formatted reports from a relational database.

Multics is a bundled operating system with Honeywell mainframes.

Linus is available for $560 and the Multics Fortran language processor licenses for $300 a month.

The remainder of the enhancements are distributed free of charge as part of the Multics update.

Honeywell, P.O. Box 3000/A-79, Phoenix, Ariz. 85066.

CUSTOMIZED DATA SERVICES

The Disk Manager

Customized Data Services has introduced a file handling package, reportedly designed to minimize the amount of overallocated file space on hard disk devices, for use with IBM System/34 and System/36 small business computers.

The Disk Manager determines the user files and libraries resident on disk and calculates whether or not their space requirements have been allocated to achieve the maximum efficiency on their system, according to a spokesman.

All user files selected to be overallocated, except those that the user specifies to be bypassed, are then rebuilt to reflect the most efficient use of disk for that data set.

The package, priced at $275, included a starting clock function that reportedly allows the user to set a time for job initialization or to incorporate the job into any user procedure.

Customized Data Services, 1450 Olive St., St. Louis, Mo. 63103.

At Morgan Stanley,
software is like any other investment.
They judge it by the rate of return

SOFTWARE & SERVICES

SYSTEMS

AIM TECHNOLOGY
Benchmark Suite II

Aim Technology has announced Benchmark Suite II, its second Unix benchmark product. The product is intended for multiple-purchase buyers to evaluate how various Unix systems perform in specific processing environments, according to the vendor.

Suite II is said to allow the evaluator to set parameters to weigh the benchmark for particular applications, such as word processing, spreadsheets, compiling and editing and computer-aided design. It can reportedly be used on any Unix system. The product consists of two programs written in C.

Suite II is available for $2,575.

Aim, Suite 150, 2335 Bowers Ave., Santa Clara, Calif. 95051.

ABLE COMPUTER, INC.
Easyway/E Decnet

Able Computer, Inc. has announced a software package that will allow its Easyway/E Unibus network controller to function as a valid device in other Digital Equipment Corp. Decnet or Pacx Systems Ethernet, local-area networks.

The Easyway/E Decnet interface package reportedly consists of an operating system driver to interface Decnet and non-Decnet users to Easyway/E and an application program to configure and initialize the device driver.

The Easyway/E itself reportedly connects DEC VAX-11 or PDP-11 computer systems to an Ethernet/IEEE 802.3 local-area network. It is said to contain the Unibus interface, data link layer interface and the transport protocol.

The Easyway/E interface software package is priced at $500 for the first VAX-11 and $250 for each additional VAX-11.

Able Computer, 1732 Reynolds Ave., Irvine, Calif. 92714.

ABLE COMPUTER, INC.
BSX-11M sysgen patch

Able Computer, Inc. has announced a sysgen patch to Digital Equipment Corp.'s BSX-11M operating system Version 4.1, which provides extended support for Able's Enable/34 controllers.

The patch streamlines usage and implements peripheral control features previously not available to users, a spokesman said. The new features include support for DEC's Decnet, device commons, connect to interrupts and cluster libraries.

The price for the software patch is $500.

Able Computer, 1732 Reynolds Ave., Irvine, Calif. 92714.

BOSTON SYSTEMS OFFICE
CT65XX

Boston Systems Office has introduced a cross-assembler that allows programmers to write for 65 series microprocessors while working on the Digital Equipment Corp. VAX-11, PDP-11 and Micro-11 computers.

The cross-assembler, called CT65XX, includes a high-speed linker and a librarian. The 65 series microprocessors — from Rockwell International Corp., Synertek, Inc. and

NCR Corp. — are based on the 6502 microprocessor.

CT65XX also reportedly features commands that add more than 35 instructions to the standard 6502 instruction set. It is available for the DEC PDP-11 series and the Micro-11 in a price range from $1,000 to $2,900. It is also available for all DEC VAX-11 model computers for $3,500.

Boston Systems Office, 469 Moody St., Waltham, Mass. 02154.

APPLICATION PACKAGES

MEGATEK CORP.
Template Version 4.0

Megatek Corp. has announced Ver-

sion 4.0 of its Template interactive graphics software system, which features an Escape interface.

Template is said to be a three-dimensional, computer-independent graphics and data display subroutine library that supports more than 135 graphics devices from dumb terminals to workstations on 32-bit or larger processors.

The subroutines can be used to create, display, modify and save graphics information for scientific and engineering applications, a spokesman said.

The new version of Template reportedly includes 24 user-callable routines.

Version 4.0 provides full upward compatibility for Template Version 3.0 applications programs, the vendor said.

It also includes the Escape interface, which enables users to access device-dependent features of a display device not supported by Template, and it offers user-defined segment clip boundaries, the vendor spokesman said.

Version 4.0 also allows enhanced device-independent display surface definition and provides logical file name support for new files and extended postprocessing capability, the vendor said.

For minicomputers, the new version is priced at $6,000; for microcomputers, it is priced at $26,000; and for mainframes, Template is priced at $32,000, according to a vendor spokesman.

Megatek, 9855 Scranton Road, San Diego, Calif. 92121.

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ADP NETWORK SERVICES, INC.
Apexa/6000

ADP Network Services, Inc. has announced an integrated project management system for processes ranging from supermicrocomputers to mainframes under the Unix operating system.

The Apexa/6000 (ADP Project Evaluation and Control System) package is said to incorporate a relational data base management system (DBMS) that provides a collection of data drawn upon for all calculations, reports and graphs. The system includes several value analysis, critical path analysis, application indexing techniques, work breakdown, organization structure consolidation and a range of data entry screens, report writing and graphics capabilities.

The package is said to summarize information to different levels of detail as defined by organization, work breakdown, accounting or other management structures. The results can be reported for analysis or displayed graphically in show status.

The mainframe version of Apexa/8000 is priced at $150,000.

ADP Network Services, 175 Jackson Plaza, Ann Arbor, Mich. 48106.

DATA PROCESSING DESIGN, INC.
IB Graph

Data Processing Design, Inc.'s (DPD) IB Graph, a menu-oriented business graphics software package for the Digital Equipment Corp. PDP-11 systems, is now available for use on DEC's VAX-11 computer systems.

IB Graph includes all the features in the previous DEC RSTS/E version, plus support of DEC VT100 terminals and the Tektronix, Inc. 4100 terminal and 4000 plotter, a spokesman said.

IB Graph is implemented in native mode using Macro-32 and VAX Basic for VAX/VMS. According to DPD, it can be used on any valid-VAX/VMS configuration version 3.5 or later, with a working-set size of 200 pages and at least 2,000 free blocks of disk space.

With IB Graph, nontechnical users can create bar, line and pie charts on a variety of graphics output devices.

The price for IB Graph for users operating under VAX/VMS is $7,500 for the 11/780 and 11/725 and $9,500 for the 11/750 and 11/780. It is distributed on magnetic tape compatible with 9-track, 800- or 1,600-bit/in. drives and most DEC removable media disks.

Data Processing Design, 1400 N. Brasher, Anaheim, Calif. 92807.

THETA BUSINESS SYSTEMS
RSX upgrades

Theta Business Systems has released several upgraded versions of its RSX Accounting Packages for Digital Equipment Corp. RSX-11 operating systems.

The new features include added support for more than 10 terminals, faster times between screens and an option allowing the user to choose either the screen or the printer when creating reports. The printer can be spooled or not, allowing a printer to be directly attached to a terminal. These options are individually settable for each terminal when installing the system.

The accounting systems are all written in Pascal and include generic ledger, accounts payable, order entry with inventory control, billing and files analysis and payroll. The new RSX releases are available for $1,495 per accounting system.

Also announced from a Digital Equipment Corp. VAX-11 Pascal version of the accounts payable, accounts receivable, general ledger and payroll systems. The software is priced at $2,500 per accounting system.

In addition, a Digital Research, Inc. CP/M-86 version of the Pascal Accounting Software has been released, configured for the IBM Personal Computer XT, the DEC Rainbow 100+ and other compatible microcomputer systems. All accounting packages are offered. The business packages are priced at $495 per accounting system.

Theta Business Systems, Suite 100, 1110 Sonora Ave., Glendale, Calif. 91201.

DATA BASE MANAGEMENT SERVICES

MICHAELS, ROSS & COLE LTD.
MDC-Technician Release 2.0

Michaels, Ross & Cole Ltd. (MRC) has announced Release 2.0 of its MDC-Technician relational data base management system and productivity aid designed for the IBM System/34 and 38.

ness packages have been priced at $495 per accounting system.

MRC-Technician, 130 Sonora Ave., Glendale, Calif. 91201.

The vendor said MRC-Technician allows users to view and modify any information in the data base, regardless of how it is stored. It also allows users to create new physical files, reports and file maintenance programs and to download information to personal computers, MRC said.

Other features of MRC-Technician include help key documentation, menu-driven operation, multilevel security, multifile retrievals, relational file joining, single or multimember file capability, unlimited sequencing and total levels, Boolean selection criteria, scanning and averaging of total levels, free format calculation definition, output device control and record modification.

Part of the modular MRC software series, the MRC-Technician module is

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priced at $1,140 per site per CPU. Multisite pricing is available.

Michaels, Ross & Cole, P.O. Box 4635, Oak Brook, Ill. 60521.

LANGUAGES

TARTAN LABORATORIES, INC.
C and Modula-2 compilers

Tartan Laboratories, Inc. has announced C and Modula-2 language compilers for Digital Equipment Corp. VAX-11 processors and National Semiconductor Corp. 16032-based Unix systems.

The compilers are said to provide optimized code while allowing program portability across different architectures.

The compilers' error diagnostics not only provide a line number and cryptic phrase for an error message, but also display the incorrect line and the area surrounding it for context, point to the error and explain the problem and how the compiler attempts to recover from it, a vendor spokesman said.

Each compiler reportedly incorporates a tool called the Production Quality Compiler. This takes machine and language definitions and produces a compiler for specific languages on specific machines, the spokesman said.

The C and Modula-2 versions for VAX/Unix systems are priced at $2,000.

Versions for 16032-based Unix systems are priced at $1,000 each, the vendor said.

Tartan Laboratories, 477 Melwood Ave., Pittsburgh, Pa. 15213.

CLINE, INC.
CEnglish Compiler

CLine, Inc. has announced the CEnglish Compiler, a C language compiler for use with the company's CEnglish fourth-generation language under the Unix operating system.

According to a spokesman, the CEnglish Compiler is a stand-alone program that can be invoked through CLine's Application Workbench — a command-oriented development environment — or from a command line of the host operating system. The compiler provides for line and macro expansion, semantic and syntactic error checking and data typing with

implicit conversion.

The spokesman said the default action of the CEnglish Compiler is to generate an executable version of a specified CEnglish source file, and the compiled C programs have the features of a standard C program, including speed and efficiency.

The microcomputer version of the CEnglish Compiler is priced at $500 for the first user. The minicomputer version is priced between $4,000 and $10,000, and the mainframe version is priced between $15,000 and $30,000, depending on the host processor.

CLine, Portsmouth Parade, Portsmouth, N.H. 03801.

SIGNETICS CORP.
C cross-compiler

Signetics Corp. has announced a C cross-compiler that allows routines written in C to be combined or linked with routines written in the Signetics SC8000 macro assembler.

A vendor spokesman said the cross-compiler is designed for system engineers developing products based upon Signetics' SC8000 16- and 32-bit microprocessor family. The cross-compiler reportedly allows users to create programs in the most appropriate language and to manipulate hardware via the program's linking capability.

The system is said to conform to Version 7 of Unix C and to produce assembler code.

The operating environment is based upon any Digital Equipment Corp. VAX-11 processor.

The Signetics C programming language cross-compiler is available immediately at $3,400, including the C cross-compiler and the SC8000 macro assembler with a 16-in. magnetic tape, the vendor said.

Signetics, P.O. Box 409, 811 E. Arques Ave., Sunnyvale, Calif. 94086.

REMOTE COMPUTING SERVICES

COMPUSERVE, INC.
TWA's Fare available

Compuserve, Inc. and Trans World Airlines (TWA) have announced that TWA's automated reservation system will now be available to subscribers of the Compuserve information service.

Fare includes flight schedules serving approximately 100,000 pairs of cities for every published airline schedule in the world, according to a spokesman.

Micro owners who subscribe to Compuserve can use the service to book reservations and arrange for tickets to be issued by a travel agency, through the mail or at any participating airline ticket office.

The reservation system will be available on both the vendor's Executive and Consumer Information Services beginning Oct. 1, the spokesman said. User costs are estimated to range from $30 to $40 per hour.

Compuserve, P.O. Box 20212, 5000 Arlington Centre Blvd., Columbus, Ohio 43220.

INFORMATICS GENERAL CORP.
CEnglish feature for Ordernet

Informatics General Corp. has announced a new feature for its Orderner

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...ent service that reportedly permits electronic transmission of hospital chargeback reconciliations between pharmaceutical manufacturers and wholesalers.

The feature is designed to improve cash flow for wholesalers dealing with hospital customers who get discounted prices from manufacturers to account for volume purchases.

With Onforced, manufacturers can electronically transmit chargeback reconciliation in National Wholesale Druggists' Association-approved format, with a single transmission, one or more reconciliations can be sent to wholesalers, according to a spokesman.

The Onforced service is available at a cost of 1 cent per record sent or received.

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..moved between frames, transfer data between frames, manipulate data in the fields of the form and retrieve data from screen.

4GF uses a full screen form that acts as a window into the data base and allows users to view, query and update data in multiple rows and tables at the same time. Previously, users could only view and manipulate one row at a time in a single table, the spokesman said. Users enter any combination of values and operators, and QBF automatically generates a Quel query to retrieve and display the data.

The new version also is said to double the speed of transaction-oriented applications by eliminating the overhead for queries that are repeated over the same data item and using a B-tree storage structure. The B-tree is the fifth access method incorporated into Ingres.

Version 2.0 is a free update to current users. A license for Ingres ranges from $20,000 to $40,000, depending on Digital Equipment Corp. VAX-11 CPU size.

RTI is headquartered at 2855 Telegraph Ave., Berkeley, Calif. 94705.

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brochures and literature provided by vendors. Any vendor can supply a list of features that look like those found in other products. The important thing to remember is not whether a product has a particular feature, but how the feature addresses requirements.

When dealing with vendors, it's necessary to find out not only what they offer but also why they offer what they do. Generally, vendors use formal presentations to explain product functions and capabilities. During these presentations, it is important to refer to a needs or requirements list and to use the list to pull information that is presented by the vendor into focus.

Two kinds of questions should be asked during a presentation: why questions and how questions. How questions are helpful in concept presentations. How does the product address this or that need? During a feature presentation, however, you should ask why the feature does what it does. This line of questioning guides vendor responses to the information most needed.

If the vendor can't answer a question

Information General, 1651 Northwest Professional Plaza, Columbus, Ohio 43229.

LITTON SYSTEMS, INC.
Computer graphics service

Litton Systems, Inc.'s Mellonics Information Center has introduced a high-resolution business and presentation graphics service that supports IBM's Graphical Data Display Manager computer graphics programs for IBM mainframes.

The price of the service is based on computer resource units on the timesharing network.

The standard rate for interactive work is $2.70 per computer resource unit, with lower rates available during off-peak hours, according to the vendor.

Mellonics Information Center, 6701 Variel Ave., Canoga Park, Calif. 91303.

DATA RESOURCES, INC.
GML CORP.
Computer Specs

Data Resources, Inc. and GML Corp. have introduced software that reportedly enables users to access 11 data bases containing detailed technical specifications of computer industry products.

The Computer Specs data bases contain specifications, characteristics, prices and applications data on more than 1,800 computer hardware companies covering more than 7,000 products. The data bases also contain information from 1,300 producers about 8,000 microcomputer software packages, including prices, functions, markets, descriptions and hardware compatibility.

The data bases reportedly can be accessed through a local telephone number using the vendor's software, any microcomputer or Ascii-compatible terminal and a dialup modem.

The hardware data bases include information on mainframe, minicomputer and microcomputer systems, disk units, printers, terminals and magnetic tape and cassette units.

The software needed to access the data bases is priced at $350.

Data Resources, 24 Hartwell Ave., Lexington, Mass. 02173.

Who brings low-cost graphics together with the best names in software?

SOFTWARE from page 52

that during a presentation, don't assume that the answer to a negative one. You may simply be unable to respond correctly without research. Write unanswered questions down, and ask the vendor to get a specific answer by a later date.

Often evaluation and selection projects include interviewing current users to determine if the product and vendor perform as represented. When checking references, talk with the people involved in direct use of the product, but also be sure to talk with the person who has responsibility for the area in which the product is used. This provides the best overall view of the product and the vendor.

Also, when checking references,

start with indirect questions rather than specific ones. Ask, for example, how the product handles a particular function rather than how a specific inquiry is made or report is generated. Often these indirect questions will uncover product/vendor shortcomings or disadvantages which may otherwise be overlooked.

Justifying an applications product is another consideration. Determine if the software can be justified through more than one approach — cost, productivity improvement and consistency with direction. Chances are it will be a good fit if you can justify it from more than one angle.

Developing a scenario of how an operation will function with the product installed is another useful step. Think through the functions performed by the product, the points

where it interfaces with people and the likely impact on the organization. After developing this scenario, test it with the vendor to verify your understanding.

Finally, look at total product cost rather than product price. When supporting elements such as service, support and training are considered, the product which appears to cost the least may turn out to be the most expensive.

Acquisition of a major applications software product is an important decision. When making that decision, look beyond the product to the vendor that backs it. Who is the vendor? How does the vendor conduct business? What is the structure of the organization behind the product? What is the vendor's financial status?

GNOSIS from page 41

that are accessed by a large number of users, such as an editor, Hardy explained. Despite the sophisticated security procedures many business employ, the operating system is not impervious to a crafty programmer who can write routines to copy the contents of any file accessing the program.

"Every data you use on either an a conventional system, you're copying your data to a place where anybody who wrote the editor can see it," he said. Of course, if the editor was purchased or a package, this is not a problem, but for shared editors that use software written in-house, protection is scanty.

As a capability-based system, Gnosis can support sharing and isolation at the same time, Hardy said. Authority to access data can be parceled out to the program on a very limited basis. "This allows programs to run independently so that they are dedicated to a particular user and particular files," he said. "You know that the only copy of the program is your copy." The system even allows such common areas as spooling queues to be bypassed.

Hardy said Gnosis' object orientation involved associating data with a fixed set of programs that can access it. Object-oriented systems include Apple Computer, Inc.'s Lisa or Xerox Corp.'s Smalltalk. Object programming ensures that programs and data can only be accessed through a single object, thus protecting against programmers writing hooks into the program and offering an easier audit trail.

Gnosis is not a new concept, Hardy noted. A similar technology is already employed on Plessey Co. Ltd.'s Plessey 250 computer; which is used primarily for communications switching. However, Tymshare believes the time is right for a high-security operating system. "The technology has been well known in the computer science field and is now viable in commercial applications," Hardy said.

Tektronix.

No graphics terminals harvest you to better utility or applications software, or with a broader range of computers, than Tek's desktop 4100 Series terminals.

Among the dividends of Tek's long leadership in graphics are the scores of program development tools and powerful applications packages already compatible, and immediately compatible with most computers.

From analysis to reporting, cartography to CAD, compatible

software helped make Tek's low-cost 4100 Series an immediate success.

Major software vendors like ISSCO, SAS, Precision Visuals and many others offer 4100 users flexibility in data analysis and presentation.

In more technical, engineering and scientific environments, users can take advantage of ANSYS,™ PATRAN-G,™ ANVIL-4000,™ GEO-MOD,™ Tek PLOT 10 Computer-Aided Drafting and Easy Graphing II.

Tek PLOT 10 graphics development software library is installed on more computers than any other in the world. It now includes the new international standard, GKS, and the Core based IGL, plus TCS, the nucleus for scores of specialized packages.

The 4100 Series lets your take full advantage of all these powerful software resources.

Fast, flexible, and priced fully equipped from just $3995, quantity one, the 4100 Series

includes VT100 compatibility and ANSI X3.64 text editing right along with its exceptional graphics.

Choose from a range of resolution, segment

It's a very quiet and reliable push-button easy desktop unit that doubles as an alphanumeric printer. Single quantity cost is just $1595.

Powerful graphics team with Tek 4695 color copiers and transparencies for a complete desktop analysis and presentation system.

Presentations come alive with the communications impact of full color transparencies that can be produced in minutes.

memory and color capabilities, backed by performance unique to the price range—including a flicker-free 60 Hz non-interlaced display, 38.4K baud communications. And color manipulation by keyboard function keys.

The expansion 4695 Color Graphics Copier now makes color copies practical.

Your Tek Sales Engineer can help you find the perfect software for your computer, your needs, and our graphics. For literature or the location of your local Tek sales office, call toll-free: 1-800-547-1512. In Oregon, 1-800-452-1877.

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National boards cost about 50% less and arrive 100% sooner.

COMMUNICATIONS

Study reveals chaos in long-distance billing
Consumer group investigates eight carriers

By Jake Kirchner
CW Staff

WASHINGTON, D.C. — A study conducted here recently concluded that the manner in which long-distance telephone carriers measure the duration of calls might be a more important consideration for would-be customers than these carriers' actual rates.

The findings, released recently by Consumers' Checkbook, a nonprofit consumer group based in Washington, D.C., and San Francisco, are part of a larger study that will be published this summer in a book called *The Complete Guide to Lower Phone Costs.*

According to Checkbook, the decision to release the conclusions of the study prior to publication of the completed book was prompted by the controversy sparked by recent customer lawsuits growing out of MCI Communications Corp.'s and GTE Sprint's billing practices [CW, Feb. 27].

The findings are based on a study conducted between September and November 1983, in which Checkbook made — or attempted — more than 2,000 calls on eight long-distance networks: AT&T's direct distance dialing, MCI, Sprint, ITT's Nitelite, Western Union Co.'s Metrofone, Allnet Communications Services, Inc.'s Allnet, Teleserve and Satellite Business System's (SBS) Skyline.

According to the consumer organization, a portion of the calls were made in the evening billing period and another portion in the night/weekend period. Results might be different for calls made predominantly during daytime hours, in different destination cities or using different service options. But Checkbook states that the findings have broad applicability. Each call was timed so that actual call duration could be compared to billed time. Checkbook reported that:

■ The Western Union Metrofone system billed for 35% of no answers, busy signals and other unexplained calls. This included many calls the company couldn't place due to the busy conditions of its own switches.

■ ITT's Nitelite did not charge the customer at all for any call busied for 80 seconds or less.

■ Teleserve charged an average of 40 seconds per call in excess of the actual call length.

■ AT&T charged 29 seconds more than actual call length. But unlike the other companies, AT&T was accurate in tracking call connections; it charged for all completed calls and never charged for uncompleted ones.

■ Allnet charged for about four seconds more than actual call length.

■ SBS' Skyline had, by far, the most generous billing practices. It allowed the highest percentage of free calls; it billed for no uncompleted calls; and it even charged for substantially less than actual connect time. SBS has changed its billing system since the time of the test, but the consumer group expects SBS to remain the most generous of the studied companies.

The carriers' bills vary because of several factors, the consumer group said. First, all companies approximate the length of each call for billing purposes. Most round up to the next full minute, so a 10-second call, for example, is billed as a one-minute call, the group explained. Two of the studied companies bill by six-

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Voice/data/video transmission market seen ripe for CATV

SAN JOSE, Calif. — Two-way CATV could play a major role in the development of a universal communications system capable of simultaneously transmitting voice, data and video signals, a study recently released here reported.

The report, entitled "Two-Way Cable TV: Issues and Opportunities," from Strategic, Inc., suggested that the market for universal communications services is expected to be greater than the market for telephone services today. In fact, according to the researchers, the new system might well absorb telephone services as we know them.

Pacing declining revenues and increasing costs, CATV operators are hoping to increase revenue by adding relatively low-cost, two-way communications dedicated to nonentertainment application. According to the research firm, CATV is driving hard to become the first supplier of universal broadband, integrated communications networks capable of simultaneously transmitting two-way voice, data and video signals.

In 1983 there were approximately 5,000 cable television systems servicing nearly 30 million subscribers in over 13,000 U.S. communities. This subscription level will generate $6.14 billion in revenues before year's end, the report said.

Since 1979, the number of subscribers has doubled, and this trend is expected to continue through the end of the decade. What is significant for CATV operators, the report points out, is that the current 36 million annual revenues represent only a 10% penetration by cable television in the top 50 U.S. television markets.

By the end of the decade, the total available market will have reached slightly over $24 billion. The increased penetration producing this fourfold growth in the market by the end of the decade will be fueled by new two-way systems, the report suggested.

Like pay television services, these new two-way services will generate added sales above the basic 55-channel television service currently being supplied. Moreover, Strategic stated, these new sales will come from both households and businesses. Unlike current pay television service, new services will involve two-way transmission.

TI announces Ethernet links

DALLAS — Texas Instruments, Inc. has unveiled hardware and software products to allow connection of the company's Business System series computers to Ethernet-type local-area networks.

The new products include the EI200 interface for the Business System 200 series; the EI300 interface for the Business System 600 and 800 series and DS900 models with the company's TIline bus structure; Distributed Network I/O (Dnio) 2.0 software; and Business System Access, a software package that enables TI Professional Computers to access Business System resources, a company spokesman said.

The EI300 interface, EI200 interface and Dnio 2.0 software will be available in August, with the Business System Access software package scheduled for release in September. The EI300 costs $3,565; the EI200 costs $2,900; the Dnio 2.0 software is priced at $3,500; and Business System Access costs $195, the vendor said.

Additional information can be obtained from TI Data Systems Group, which can be reached through P.O. Box 402430, Dallas, Texas 75240.

Dynatech offers bisynch-X.25 tie

ALEXANDRIA, Va. — Dynatech Packet Technology, Inc. has announced a packet assembler/disassembler that reportedly allows equipment operating with IBM's 3270 bisynchronous protocol to be interconnected via X.25 packet-switching networks.

The Protopads.25 reportedly is capable of connecting to 32 terminal devices in point-to-point or multidrop mode to one packet-switched line.

When operating in either switched or permanent virtual circuit mode, the Protopads.25 also has the capability of multiplexing data calls at the logical channel level using the Consultative Committee on International Telegraph and Telephone (CCITT) Datapac 3303 procedures, a vendor spokesman said.

Call setup is under the control of each connected 3270 device. A plain English command name is available via a table-driven compatible diagnostic and configuration port, to set up poll tables and systems parameters, the spokesman said.

Protopads.25 is available for $1,400.

Dynatech Packet Technology is located at 6464-G General Green Way, Alexandria, Va. 22312.

COMMUNICATIONS

COMMUNICATIONS CONTROLLERS

NCR Comten, Inc.
MAP/BRO

NCR Comten, Inc. has announced the Comten Multiple Access Facility with Remote Host Option (MAP/RHO) for the company's 3600 communications processor system.

The product allows IBM System Network Architecture (SNA) and bisynchronous 3270-type terminals in an IBM SNA or pre-SNA network to access non-IBM hosts. It also allows access to IBM hosts located in separate networks, the vendor said.

Polling and addressing of terminals for the host, error recovery and control function and alternate routing for remote nodes are all provided by the MAP/RHO. The product also is compatible with earlier releases of the company's multiple-access facility, a company spokesman said.

The price is $6,495.

NCR Comten, 2700 Snelling Ave. N., St. Paul, Minn. 55113.

VOICE/DATA COMMUNICATIONS

TELEBAYER, INC.
Quick Call 3000

Telesaver, Inc. has announced the Quick Call 3000 autodialer featuring speed dial, memory storage and retrieval and least-cost routing.

With the autodialer, one to 24 users can access alternative long-distance services by dialing only two and three-digit numbers. The system operates with single-line telephones, key systems and private branch exchanges and works with AT&T and

other common carriers as well as international calls, the vendor said.

Features of the product include the ability to store and speed-dial up to 250 local and long-distance numbers, the ability to determine which subscribed common carrier offers the least expensive service for a particular call; the ability to redial a call until completed, with information entered one time only by the user; and a cost accounting feature for billing by person, department, cost center or client, the vendor said. The price for a one-line unit is $495.

Telesaver, 30 Gwynns Mill Court, Owings Mills, Md. 21117.

GATEWAY TELECOM

X25PC

Gateway Telecom has introduced an X.25 communications product to connect IBM Personal Computers with packet-switched networks. The product reportedly utilizes a multitasking operating system supporting up to 32 logical I/O channels.

The product, called the X25PC, can be said to implement the full CCITT X.25 recommendation for data transmission on packet-switched networks. The X25PC software reportedly will provide document exchange facilities on the Personal Computer. It includes an option card, a floppy disk and documentation.

The X25PC is available for $1,800.

Gateway Telecom, 853 Broadway, New York, N.Y. 10003.

MULTIPLEXERS/MODEMS

LOCKHEED-GEORGIA CO.
Data Secury

The Getex Division of Lockheed-

Georgia Co. has introduced Data Secury, a modem that can reportedly prevent data theft and other security breaches of personal, intel and mainframe computer systems without requiring encryption or changes in system programming.

The modem uses a call-up, callback and password sequence and offers all the telecommunications features of conventional intelligent modems, the vendor said.

The asynchronous modem operates full duplex at 300 or 1,200 bit/sec and has autodial, autoanswer, autospeed and autoparity selection. Terminal interface is a standard RS-232C cable. The telephone interface is a single telephone number drop with an RJ-11C connector.

The price is $995, according to the vendor.

Lockheed-Georgia, Department 6402, Zone 19, Marietta, Ga. 30063.

KINEX CORP.

2400/PDX

Kinex Corp. has announced the 2400/PDX modem intended for full-duplex synchronous and asynchronous data transmission at rates of 1,200 and 2,400 bit/sec over two-wire switched or leased lines.

Standard features of the modem reportedly include automatic answer/disconnect, automatic rate recognition, transmission status and line signal quality indicators plus internal and remote-controlled digital

loopback testing.

The price is $1,695, the vendor said.

Kinex, 5500 Bryan Dairy Road, Largo, Fla. 33543.

HALCYON COMMUNICATIONS, INC.

6681A

Halcyon Communications, Inc. has introduced a statistical multiplexer that concentrates up to 32 channels over a single phone link.

The 6801A features expandability from four to 32 channels, supporting a mix of asynchronous traffic and half- and full-duplex synchronous data.

Speed selections range from 50 to 9,600 bit/sec, including notebook, with speeds at each end of the channel selected independently, a company spokesman said.

Asynchronous channels support all standard inband and outband flow controls, which can be independently selected at each end of the channel for traffic balancing throughout a point-to-point network, the vendor said.

Special flow control conventions are also supported, according to the vendor.

The price for a four-channel unit is $1,795; an eight-channel unit costs $2,595.

Halcyon Communications, 2121 Zanker Road, San Jose, Calif. 95131.

COMMUNICATIONS

MODEMS from page 56

DIGILOG, INC.
Modem Wrap Around Box, Model WBB/1

The Network Control Division of Digilog, Inc. has introduced the Modem Wrap Around Box, Model WBB/1, a remote-controlled data communications device that enables the testing of communications lines and local remote modems.

The product performs the following five basic loopback (digital and analog) bit error rate; polling test; analog levels (transmit and receive); and self-test, the vendor said.

For four-wire, bound-free modems operating from 1,200 to 4,800 bit/sec, the secondary channel operates at 150 bit/sec. For 9,600 bit/sec modems, the secondary channel is set at 75 bit/sec.

Model WBB/1 costs $950.

Digilog Network Control Division, 1370 Welsh Road, Montgomeryville, Pa. 18936.

CODE-A-PHONE CORP.
Tel-A-Modem

Code-A-Phone Corp. has announced Tel-A-Modem, a two-line desk-type telephone that houses an intelligent modem and is said to be designed for both commercial and residential applications.

Tel-A-Modem features include 300 and 1,200 bit/sec data transmission rates, full-duplex operating mode, automatic answer and instant status indication.

Telephone features include audiovisual phone status, hold function for both lines, last-number automatic redial, nine-number memory automatic dialer and individual volume controls for ring signals and line monitor, the vendor said.

The price is $695.95.

Code-A-Phone, P.O. Box 5656, Portland, Ore. 97228

LOCAL-AREA NETWORKS

CONCORD DATA SYSTEMS, INC.
Token/Net

Concord Data Systems, Inc. has an-nounced its Token/Net local-area network, which the company said is the industry's first local network to meet the IEEE 802.4 token-passing standard approved last September.

The product uses the token-pass-ing access method and a broadband, CATV-type physical medium.

The price is $600 to $850 per port, depending on configuration. A four-port box costs $3,495; a 10-port box costs $5,500.

Concord Data Systems, 303 Bear Hill Road, Waltham, Mass. 02154.

ABLE COMPUTER
Easyway/ET

Able Computer has introduced a network controller that connects Digital Equipment Corp. Unibus-based PDP-11 and VAX-11 computers to Ethernet-type networks that are compatible with IEEE 802.3-speci-fied protocols and TCP/IP protocols (the latter being the Department of Defense's Transmission Control Pro-tocol/Internet Protocol).

The controller, Easyway/ET, con-sists of two physical modules, a Host Protocol Processor (HPP) and a Com-munications Adapter Board (CAB). The HPP module contains the Unibus interface, and the CAB provides the data link and physical-layer protocol to the Ethernet network.

Easyway/ET software device drivers are provided for the DEC VMS and RSX operating systems.

Easyway/ET is available for $7,200.

Able Computer, 1732 Reynolds Ave., Irvine, Calif. 92714.

BRIDGE COMMUNICATIONS, INC.
CS/1-IBM

Bridge Communications, Inc. has introduced a new model of its Com-munications Server/1 that reported-ly provides single-cable connection between a Digital Equipment Corp. VAX minicomputer and a Xerox Corp. Ethernet-type local-area net-work.

The CS/1-IBM high-speed multi-plexed host interface system is a front-end processor connecting up to 48 terminal sessions from other nodes on an Ethernet to a VAX over a single high-speed serial line, a vendor spokesman said.

It reportedly consists of the ven-dor's CS/1 network interface system incorporating an IBM interface card linked via a single bit-432 cable to the vendor's box-size Unibus host adap-tor board inside the VAX.

The CS/1-IBM is priced at $16,500. Per-port connection costs begin at $366 for 48-terminal sup-port.

Bridge Communications, 10440 Bubb Road, Cupertino, Calif. 95014.

CORVUS SYSTEMS, INC.
Omnishare

Corvus Systems, Inc. has intro-duced a product called Omnishare that is said to permit the fixed disk of an IBM Personal Computer XT to em-ulate a Corvus disk system. The mod-ification reportedly permits the cre-ation of a low-cost Corvus Omninet local-area network.

Omnishare allows users to decide how much space on an IBM fixed disk is to be used by the host computer and how much is to be shared, the vendor said.

The host computer reportedly may also use and manipulate the data in the common portion of the disk.

The product reportedly uses sim-ple twisted-pair cabling and allows 64 computers or peripherals to oper-ate together over distances up to 4,000 feet.

It is available from the vendor for $795, including the emulation soft-ware, an IBM Personal Computer XT transporter card, Omninet cable and manual.

Corvus Systems, 2100 Corvus Drive, San Jose, Calif. 95124.

TEST EQUIPMENT

HEWLETT-PACKARD CO.
Enhancements for 4965A

Hewlett-Packard Co. has an-nounced enhancements for the 4965A protocol analyzer. According to a spokesman for the vendor, the enhancements include software and hardware to help increase a user's ability to solve data communications problems for international applica-tions.

The enhancements include the 18146A, a software applications ac-cessory providing additional capabil-ity to decode and display the CCITT No. 7 common-channel signaling pro-tocol; the HP 18146A remote testing pack that allows a high-end HP 4965A to talk to another 4965A at re-mote locations; and read-only memo-ry changes and a software package that enable the 4965A to display in the Japanese katakana character set using JIS-8 data code.

The price of the HP 4965A proto-col analyzer with Basic is $17,880. The HP 18146A remote testing pack is $500; the HP 18146A is $600; and JIS-8 data code costs $350.

HP, 1820 Embarcadero Road, Palo Alto, Calif. 94303.

GENERAL DATACOMM INDUSTRIES, INC.
NDC-40

General Datacomm Industries, Inc. has announced the NDC-40 diagno-

Figure $50 a line for programming.

When people look at business computers, they sometimes overlook a crucial consideration: the price of writing and maintaining software.

But we didn't. When we designed the HP 3000 family, we created special productivity tools to reduce the high price of developing applications software. With dramatic results.

Many HP 3000 customers now use 1/5th the amount of code writing these programs, compared with using high-level applications language.

Since the average program costs you about $50 a line to develop, you can see why EDP budgets go so much further on an HP 3000.

You can use our development tools with the entire HP 3000 family. And, as all four systems are fully compatible, you can run the same, identical programs on your small branch office computer and on the big system in your regional headquarters. Without spending a penny to rewrite code or recompile.
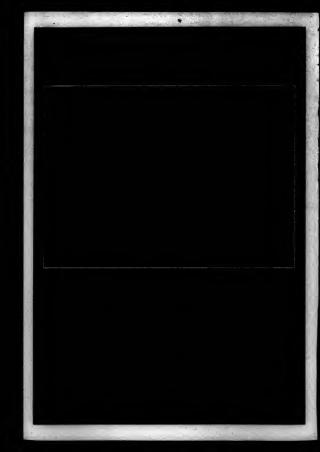
tic controller for the company's Netcon family of network management systems.

The product serves up to 54 multipoint lines and 1,024 diagnostic addresses, providing real-time reporting of network alarms in point-to-point networks over analog, digital and wire link facilities, the vendor said.

This dual diskette-based controller reportedly comes standard with a color CRT console, accepts an optional printer and will support all current and planned Netcon hardware. The disk package is available in a self-contained shelf with two 600K byte side-by side 8-in. floppy disk drives. The price is $16,000.

General Datacomm Industries, One Kennedy Ave., Danbury, Conn. 06810.

AUXILIARY EQUIPMENT

ASTROCOM CORP.
Dual 16 Synceplexor

Astrocom Corp. has announced the Dual 16 Synceplexor, a coaxial multiplexer that permits connection of up to 32 IBM 3270-type terminals and/or printers to a single coaxial cable.

The system consists of two 16-port devices in a rackmounted unit. The Dual 16 operates in a point-to-point, multidrop, star or a combination of these configurations, has individual channel diagnostic and fault/status indicator lights and provides up to 32 drops per 3274 controller, the vendor reported.

The price is $3,472.

Astrocom, 120 W. Plato Blvd., St. Paul, Minn. 55107.

PARADYNE CORP.
Info-Lock-1027

Paradyne Corp. has announced Info-Lock-1027, a data encryption device that uses the National Bureau of Standards Data Encryption Standard algorithm.

The product reportedly meets Federal Standard 1027 and will protect information transmitted over various communications media, including terrestrial, microwave or satellite facilities.

The device can be used with point-to-point or multipoint circuits, independent of the link protocol, the ven-

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dor reported. The device can be configured from the front panel for synchronous or asynchronous operation.

The price is $2,665.

Paradyne, 8550 Ulmerton Road, Largo, Fla. 33540.

CONTEMPORARY CONTROL SYSTEMS, INC.
Network control module

Contemporary Control Systems, Inc. has announced a network control module

that provides standard bus users with an interface to Datapoint Corp.'s Arcnet local-area networks.

Individual 2871 modules provide users with transparent network operation, control and protocol in the passing of data within the Arcnet system. Arcnet networks reportedly support up to 255 nodes and data rates up to 2.5M bits.

The price is $495.

Contemporary Control

Systems, 4040 Forest Ave., Downers Grove, Ill. 60515.

CONNECTICUT MICROCOMPUTER, INC.
Baxter BIA

Connecticut Microcomputer, Inc. has introduced the Baxter BIA, a microprocessor-based interface that enables up to 15 individually addressed IEEE-488 devices to be connected to a single RS-232 port.

. Features of the interface serial port include switch-selectable bit/sec rates (300 to 19.2K) and switch-selectable parity and word length.

The BIA is compatible with service request, serial poll, parallel poll, remote/local, local lockout, device clear and device trigger interface functions.

The price is $695.

Connecticut Microcomputer, 36 Del Mar Drive, Brookfield, Conn. 06804.

TARTAN

COMMUNICATIONS

KAPTRON, INC.
WDM-01; WDM-02

Kaptron, Inc. has introduced the Wavelength Division Multiplexer (WDM-01) and Demultiplexer (WDO-02).

The multiplexer combines light signals at two wavelengths from two input ports and delivers them to a single fiber output channel, and the demultiplexer separates the signals and delivers them to two output ports with minimal cross talk. The devices, which have specially coated mirrors, are 7/16-in. in diameter and 2.5-in. long. A pair costs $1,800.

Kaptron, 3460 W. Bayshore, Palo Alto, Calif. 94303.

Lineguard system enhanced

YOUNGSTOWN, Ohio — Western Datacom recently introduced an expanded Model 3060 Lineguard system designed to prevent unauthorized dial-up access to stored data.

According to the company, when a caller dials into the 3060, he is prompted for an access code. The caller is given 20 seconds and two chances to enter his code correctly. If the entry is incorrect, Lineguard will instruct the modem to disconnect and log an error. An optional monitor is also available to create an output log for either a printer or computer.

If the caller's code is verified, the device reportedly will call him back at a predetermined number. The user

is informed if the callback can be placed immediately or if it must be queued for the next available line. The user then chooses to accept or reject callback.

An added feature of Lineguard is that group codes assigned to each user provide for least-cost routing, port contention and port selection. The device assures the same level of security normally limited to private lines, the company said.

The price of the Model 3060 Lineguard is $985 for rack-mounted installation.

Western Datacom is located at 5083 Market St., Youngstown, Ohio 44512.

Allnet — round up to the nearest tenth of a minute.

A second reason for variation in billing accuracy, according to Checkbook, is the difference in the various telephone companies' measurement capabilities. There are three telephone call measurement approaches: answer supervision, audio detection and guesswork.

The best precise approach to telephone measurement is answer supervision, which determines when a called party lifts the phone's receiver. AT&T has this capability; SBS has set it up on many of its routes. And a few other companies have it on some routes, but many calls on these carriers' systems cannot be measured by this approach, Checkbook reported.

An alternative approach used by telephone companies is the use of audio detection equipment, which "hears" a difference in sound when the called party lifts the phone.

Another approach used by carriers to measure calls involves timing. Ordinarily, carriers that rely on this method wait a specified amount of time, maybe 30 to 45 seconds, before a call is charged. But after that period, the caller may be charged even if the phone is still ringing.

The Complete Guide to Lower Phone Costs will be available for $4.95 from Washington Consumers' Checkbook, Suite 925, 806 15th St. N.W., Washington, D.C. 20005.

for of digital data.

Besides the homeowner, to whom two-way cable services such as videotex, access to official airline guides, banking, burglary protection and sensors will be available, businesses like banks and large corporations will be the new breed of cable subscribers thanks to two-way cable capabilities, the reports stated.

These businesses, with offices scattered about in many different locations in a local geographic area, will continue hooking up their large computers at three different sites over high-speed channels on the cable. For the cable operator, adding data communications capability onto the entertainment network could be profitable with as few as ten subscribers, the researchers reported.

The report costs $3,000 and is available from Strategic Inc. through P.O. Box 9747, San Jose, Calif. 95151.

consumers and small and medium-size businesses to determine costs for the same calls on each of more than a dozen alternative long-distance networks.

Criteria included in the evaluation will be the rate periods during which the calls are made (day, evening or weekend), length of call, call origination and destination and volume of calls.

The projected cost for businesses using the rate service evaluation will be 2% to 3% of the company's annual telephone bill. A yearly one-time update will be offered to customers at a substantially lower fee.

Further information is available from Washington Consumers' Checkbook, Suite 925, 806 15th St. N. W., Washington, D.C. 20005.

The tyranny of words

By Priscilla Burgess

While all technical writing departments appreciate the importance of verbal communication, few adequately value visual communication. No department should be without an art director. A technical manual that consists of a stack of pages spit out by a word processor is unfinished.

Jack, a warehouse forklift driver, held up a plain blue notebook. It was a standard, three-ring binder containing perhaps 200 pages. Each page was dense with words. Jack thumbed through the pages and, looking up, said, "I'll never be able to use this computer."

Jack has discovered that between him and the computer is a huge barrier — the technical manual. In order to learn to use this new tool in his work, he will have to read and understand more words than he has dealt with in the last 10 years.

The technical writers who prepared this manual sincerely believed that they had done the best job possible. Because Jack and his co-workers are new to the technology, the writers were careful to provide extensive detail about the application as well as information about the operating system and file management. The manual had been checked by the programmers for technical accuracy and by a former English teacher for grammatical accuracy.

The gap between Jack's needs and the information provided by the computer company is a formidable one that is well recognized by computer companies, their customers and technical writers. As competition among those companies increases, customers look to see which system or which software will be easiest to learn to use. A good technical manual can be a company's most powerful selling tool.

Considering the amount of interest, energy and money invested in improving manuals, why are they still the albatross of the computer

industry? A major clue is in the title of the people who produce them: technical writers. This title defines and restricts how the world thinks about communicating computer information — it is technical and it is written. Technical manuals are repositories of words — perhaps a joint effort of writers and technicians — that describe what a computer does, not how to use it.

Technical writers are perpetuating the approach started early on when only highly trained technicians were using computers. The kind of information they needed is very different from the kind of information the computer-naive user needs today.

In an effort to accommodate the new users, the technician-turned-writer is changing to the ex-English teacher and the former journalist. While the writing style has changed, the kind of information and the way it is presented have not. The computer industry appears to be committed to burying its users under an avalanche of meaningless words.

Not a writing exercise

We need to get out from under the words and look at communicating technical information in a different way. Putting together a technical manual should not be considered a writing exercise. It should begin with the idea of communication. The typical communication event consists of a sender, a message and a receiver. The goal, therefore, is to prepare a message that carries the information the sender wishes to

send in a way that is optimally comprehensible to, and usable by, the receiver.

If the idea of communicating a message is kept in the fore, it is easier not to fall into the trap that the message must be confined to the written word. All of us gather information all day long from a variety of sources. When we learn to do something, like using a computer system, we may watch someone for a while, ask questions, read a bit and practice a lot. Rarely will anyone learn anything from only one source. And it's virtually impossible to learn a skill by reading a book.

First, we need to look at the people who produce the manuals — the source. Should the staff include other kinds of employees besides writers — such as visual communicators and researchers? And if so, how do they work together? Second, we need to look closely at the users — the receiver. Who are they, how do they work, how do they get the information they need? Third, we need to

look at the way we present the information — the message. Should it always be written? What kind of information is really necessary? What should be written, what should be illustrated, what should be on the screen, and what should be told to the user?

A communication approach to preparing technical manuals draws upon theory, research and creative expression of various fields such as anthropology, psychology, communication research, art, education and consumer research. It was need to prepare a second manual for Jack and his fellow warehouse workers.

The source

When a company prepares a high-tech product for the marketplace, millions of dollars and a good deal of time are spent in research, development and manufacturing. Close to the day when the product is to make its debut, technical writers are given a small amount of time and an even smaller budget to prepare the instruction manual. Anyone who has worked in this industry is familiar with the last-minute panic and chaos of the writing staff.

This was the exact situation at the company that was preparing the inventory system for Jack's warehouse. Because of the size and complexity of the system, several years were spent in software development. Even though there was an effort to document the system as it was developed, the number of changes from the first specification to the final software delivery was so great that

original documentation was outdated.

During the development stage, technical writing projects were divided between the technical representatives and the marketing secretaries, occasionally assisted by technical writers. As the delivery date approached, the management started looking seriously for someone to prepare the manuals. As with virtually every other computer company, the qualifications they sought were a certain level of technical knowledge and a proved competence in writing.

Departmental structure

The typical structure of a technical writing department is a manager who has had experience as a technical writer and is frequently a former teacher. Under this manager are several writers with similar backgrounds, but perhaps not as much experience in the computer field. Usually, each writer is responsible for every aspect of one manual.

White space frequently causes anxiety in writers. If you give writers a blank piece of paper or a blank screen, they will fill it up, leaving about an inch of margin around the edges. This is a natural and proper thing for a writer to do. When writers produce a manual, they concentrate on what they know and do best — words.

It is hardly fair to expect people who have devoted their lives to words to suddenly, upon demand, provide illustrations, design page layouts, spec type and deal with printers. Nor is it reasonable to expect them to have made a study of audience analysis techniques so that they can design the manual based on researched needs. At the very least, if writers are expected to be competent in such a wide range of activities, they should be paid accordingly.

When professional writers are employed to design or illustrate manuals, writers have difficulty in figuring out what should be illustrated and what should be written. Left on their own, artists will frequently decorate rather than illustrate. The problem is not too bad when the product has a physical reality, such as a microcomputer. But when the product is software, how does one visualize millions of electrical impulses?

Computer companies do not incessantly staff a department with writers because they believe it is the best way to achieve their product. It is often simply because no one has offered a better alternative.

In order to get away from a tyranny of words, we need to restructure the organizational chart and pull in a few people who are not presently

represented. The person in charge of producing user manuals needs to have a broader view of message design than is currently the case.

Different kinds of information needs to be communicated in different ways. Experience with and knowledge of the users of all media, not just printed words, is highly desirable in a project director. If the project director is used to working with various kinds of artists, as well as writers, he will be better able to break a message down into appropriate words, pictures and media.

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> *The title "Technical Writer" not only defines how the industry perceives this function, it also limits the way the rest of the world perceives it as well. People with research or media communication skills would probably not think to apply to technical writing departments.*

word processor is unfinished.

Technical writers are often considered to be the in-house user advocates. They are consulted by programmers on problems of screen design and the construction of on-screen instructions and messages. And yet, many technical writers have never seen or spoken with the intended users. How is one to know the best way to construct a message if one knows nothing about the person who will receive it?

The last addition to the staff is the researcher. Before a project begins, a user-needs assessment and audience analysis must be done. Without this information, there is little hope of creating an effective and useful message. Throughout the development of the materials, the selection of visuals and instructions needs to be carefully tested to ensure that they are sufficient and accurate. At the end of the project, there needs to be an evaluation of the manual's overall effectiveness to guide the staff on future projects.

Where does one find these people? As things are today, they are not likely to be sitting in the personnel office. The title "Technical Writer" not only defines how the industry perceives this function, it also limits the way the rest of the world perceives it as well. People with research or media communication skills would probably not think to apply to technical writing departments.

Recruiting sources

The best source of these people would be advertising agencies that handle high-tech accounts. Several companies in California's Silicon Valley have already started the trend by hiring people who have extensive marketing backgrounds in promoting traditional consumer goods.

This assortment of skills — media experience, writing, art and research — does not necessarily represent four separate individuals. The staff that was brought together to create the manuals for the warehouse consisted of a project director, who had media skills as well as research ability; an illustrator; a design consultant, who also did the final editing; a technical writing trainee, who also did page layout; and one genuine, experienced technical writer, who also did the final proofreading.

Rather than turning the entire project over to one writer, everyone worked on every manual, each person doing only what he did best.

The project director did the initial audience analysis and user-needs assessment. With this detailed information about the user, the project director and the design consultant outlined the basic approach. An illustrator was selected and called in to help prepare a formal presentation to the president of the company.

The writing was produced in several stages. The experienced technical writer prepared a technically accurate draft describing the workings of the system. Meanwhile, the project manager wrote a chapter as a sample of the writing style to be used. This chapter was then revised again by the design consultant. The novice writer was assigned to do the glossary and error messages and to edit the original technical draft.

While the writing was in progress, everyone participated in brainstorming sessions to come up with appropriate illustrations. All the way

"A MAJOR PART OF PREPARING SUCCESSFUL COMMUNICATION MATERIALS IS A PROFOUND UNDERSTANDING OF THE USER."

through the project, the illustrations and the copy were tested to be sure that they were communicating as planned.

The last stage of the project was production: page design and layout and printing. The novice writer, whose training had been in photography and graphics, was responsible for preparing the pages for the printer. The experienced technical writer did the final proofreading.

The success of any project has a lot to do with the variety of minds and talents of the people involved. Most important, however, is the concept of the integration of the work of several specialists, rather than expecting one person to be a generalist, trying to do all functions well.

The receiver

The second major part of preparing successful communication materials is a profound understanding of the user. How can we communicate with people if we know nothing about who they are or about the way they think, feel and learn?

At first glance, it seems overwhelming to try to understand the vast armies of people, growing daily, who are computer users. In dealing with any large audience, it is always easier to break it into segments. Users of high-tech products can be broken down into four segments: Captive positive, captive resistant, noncaptive positive and noncaptive resistant.

The captive positive user is one who must use a computer and wants to do so. An example would be someone who actively participates in the automating of his work. A captive resistant user is one who must use a computer to keep his job but isn't happy about doing so. A noncaptive positive user is one who doesn't have to use a computer but wants to, such as someone who buys a home computer. The noncaptive resistant user doesn't want or need to use a computer and, as a rule, will not be a target for communication materials.

Jack and his co-workers are a captive audience that has wavered between being positive and being resistant. On the one hand, they are resistant to changing the way they

work and are concerned about their job security. On the other hand, they are a bit excited about learning to use a computer and want to support the warehouse manager, whom they like and respect.

At the beginning of any communication project, it is necessary to spend some time with the intended users to find out as much as possible about them. A formal approach to audience analysis, such as having people fill out questionnaires, is costly and time-consuming. People will often say things in casual conversation that are too lengthy to write down. The project director decided to spend a week at the warehouse and gather the information by observation and casual conversation.

The "foreigners from Funnyvale" were fascinating objects of curiosity, and their presence broke up the routine of the warehouse. Curiosity about life in California was a lot more powerful than any shyness, and there were as many questions asked as answered.

Learn by observation

One can learn much by observation and a few casual questions. It is important for the person asking questions to explain how the information will be used. Usually, a direct approach is best; information is being gathered so that communication materials address the needs of the user.

The best way to gather the information is in naturally flowing conversation rather than going down a list of prepared questions. It is necessary to know in advance what kind of information is needed and to make sure that over the course of the time everything has been covered.

A skillful communicator will keep track of the words his audience uses to express itself and then incorporate this vocabulary into the final message. The same technique should be applied to visual communication as well. If the users depend upon TV for learning about their world, perhaps video may be a more effective training tool than a manual.

The result of the research was that, except for a few office workers, the audience was male, ranging in

"WHEN THE DESIGN OF THE MESSAGE IS CREATED BY A GROUP OF HIGHLY COMPETENT SPECIALISTS WHO HAVE A DEEP UNDERSTANDING OF THE NEEDS OF THE USER, THE RESULT IS A POWERFUL AND EFFECTIVE COMMUNICATION TOOL."

age from about 30 to 55. They considered themselves professional warehouse workers and had no intention of doing any other kind of work. None had more than a high-school education, although some were seeing their children through college. There were several recent immigrants, but they had come from English-speaking countries.

These people enjoyed the outdoor life and spent much of their free time hunting, fishing and camping. They got most of their information about the world from TV and pictorial magazines. They were politically and socially conservative and considered using a keyboard of any type "women's work."

Besides gathering factual information about users, it is important to

know how they feel about the new technology. The users' attitudes toward the computer affect how they will learn to use it. Often, the user manual represents the only physical reality of the software. If the manual is thick and wordy, then the user perceives the software as difficult and complex. Jack's initial reaction to the original manual is a perfect example of this. In reality, he would only be using a small portion of the system, which was eventually explained in a very small book.

Negative attitudes

Negative attitudes create an atmosphere in which no learning can take place. While communications cannot control the events surrounding automation, being aware of the impact of attitudes on learning is important.

In preparing the materials from which users learn to operate their computers, it helps to be familiar with the way people learn. First, you must get their attention. Second, they must be able to understand the message. Third, they must then be able to perform the behavior you want them to learn. And last, they must be able to repeat the behavior.

The manual is very important in getting the users' attention. Attention can be attracted by preparing interesting-looking materials. This is often best achieved with nonverbal communication such as illustrations. Before a person will read a manual, which is a rational and deliberate action, something must attract the person's attention. This step is especially important when the target audience is personal computer owners looking for software to buy in a retail store.

The information presented must be couched in terms that are understandable to the users. Presenting too much information in just as much a barrier to learning as is too little. Using language or metaphors that are inappropriate to the audience will ensure communication failure.

The true test of the users' understanding of the information contained in the manual is how quickly

and easily they can use the computer. If, after reading the manual, the users cannot use the computer, then the manual doesn't work.

The last step in the learning process is the ability or desire to repeat the activity learned. If the user finds that performing is not rewarding, he will not continue to do it. This has happened to the home computer user who discovers that finding the information necessary to use the system is so unrewarding that it ends up gathering dust in a closet. Another example is the person who is afraid of being replaced by a computer at work. Economic survival is a powerfully motivating force. If a person thinks he will keep his job by not learning to use a computer, he may refuse to learn it.

Know your audience

This is a simple summary of a large body of research on human behavior. The more technical communicators know about their target audiences, the more effective their communication materials will be. Preparing training materials without this understanding is like trying to hit a target blindfolded.

When the design of the message is created by a group of highly competent specialists who have a deep understanding of the needs of the user, the result is a powerful and effective communication tool.

We need to move away from the dependence on a large book full of words that contains everything there is to know about the computer and its software. The assumption that the user will read the book from beginning to end before he uses the computer does not reflect the reality of the learning process.

Using a computer is something people do. They learn to use a computer the same way they learn other skills. Typically, people begin to learn by watching other people. They ask questions, read a bit and practice a lot. Keeping in mind a person's propensity for gathering bits and pieces of information from a variety of sources

helps to break the big-book habit.

Designing any message involves a careful balance of words and pictures of information that is presented verbally or that is best communicated visually; of information that is included or left out; or of information that needs to be repeated frequently or not at all.

The medium into which the message is packaged has a lot to do with how people

react to the message, how they feel about it and how well they learn it. Film, video, print and person-to-person communication present different kinds and quantities of information.

Film and video are similar in their production and the kind of information presented. They differ mostly in the size of the audience to which they can project. While detailed, step-by-step information cannot be remembered

by viewing a film or video, they provide an excellent way to set attitudes and give general overview information.

Power of print

Print is by far the most powerful medium for transmitting detailed information. By restricting the message to words, however, technical manuals fall into the same trap as most textbooks — they are incredibly boring to

read and require highly motivated readers to plow through them. While adults will put up with such literature, children won't, and, therefore, children's books provide us with examples of combining text with illustrations to transmit information.

Combining various media, such as film for general, introductory information; video for showing details of physical procedures, such as

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loading tapes onto a computer; and print for details the user will refer to over and over again, with person-to-person involvement of trainers, is the most effective and powerful approach communicating technical information. This combination breaks the message into various forms over time and can deal with the changing needs of the users as they progress in their learning.

The organization of the content is best when it reflects the behavior of the user, rather than the behavior of the machine. Breaking down the information by task categories or procedures enables users to have only that information which applies directly to their work. If one is a receiving clerk, one does not need the shipping clerk's documentation.

Recognizing the different informa-

tion needs of the novice and the experienced user is also important. Many manuals begin with assembly instructions and skills training that are not used after the first few days. Unfortunately, the pages remain to become a minor barrier to more frequently used instructions further back.

While endless amounts of energy have been devoted to the verbal messages of technical writing, virtually no attention has been paid to the visual messages. Most training materials are visually unappealing. In the case of the packaging and the manuals that come with retail software, the contents do not live up to the promise of the covers.

While words are certainly a good way to transmit information, to disregard the impact of good visual

communication on learning is like trying to make a hot fudge sundae without the hot fudge sauce.

The packaging or the physical form of the message serves to attract the attention of the audience and to build attitudes toward the product. Once the attention has been captured and the initial reaction of the user is positive, the design of the pages guides the eye to the order and importance of the words and pictures on the page.

The proper use of illustration can eliminate pages of text and enhance the understanding of difficult and complex information.

On the other hand, illustrations added as decoration rather than as another expression of information become distracting noise, drawing the eye and the mind away from the

communication process.

By combining the power of words with the power of pictures, the result is communication that is more effective than either alone.

By pulling together the information we have gathered about Jack and his needs, we can set up a structure from which to prepare communication materials for him. We have found out that Jack does not learn by spontaneously and enthusiastically reading 300 pages of text — indeed, who does? Jack prefers to see pic-

The proper use of illustration can eliminate pages of text and enhance the understanding of complex information.

tures and hear words. We know that he is somewhat discouraged by the apparent complexity of the new system, but given a chance, will go to great lengths to support his boss and the company for which he works.

We know that Jack's first language is English and that his comprehension is good enough so that we don't have to make any special allowance for general information. However, because he has never used a computer before, unusual computer words and terms will need to be explained. We know that Jack is a man of action and the quicker he can use his computer the happier he will be about it.

Based on this, we created a manual that was the greatest possible contrast to the first manual Jack saw — a small, illustrated manual in the form of a comic book. Simple flowcharts illustrating his tasks replaced pages of text. The manual's size and humorous illustrations communicate the idea that the work is simple and might even be fun.

Although the manual looked different, it contained the same information as the larger book. The major difference was that we translated many pages of detailed directions into a few illustrated flowcharts. Each flowchart represented one entire type of job, showing all the steps and possible alternative actions Jack could take. This manual enabled him and his co-workers to use their system quickly and easily, with a minimum of assistance from the trainers.

While we decided to produce a comic book, it is important to keep in mind that there are many different ways to communicate the same information to the same audience. When the audience changes, needs will be different and materials must be designed accordingly. Instead of being tied to an end product, a book full of words, if the focus is on the communication process, we can break the tyranny of words and start communicating.

About the author

Priscilla Burgess is a graduate student at Stanford University in communication research. While working on her degree, she has been consulting with high-tech companies on technical communication problems and teaching classes in technical writing. Burgess was formerly a manager of product communication for a Silicon Valley firm.

Mario Risso is an illustrator who lives and works in San Mateo, Calif.

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IN DEPTH

Where it all begins: A budget that fits your plan

By Kenneth E. Phelan

The memorandum on your desk from the vice-president of finance informs you that next year's budget must be completed by the end of the month. He expects you to deliver a presentation to the steering committee to explain how requested expenditures are consistent with the strategic plan. Your immediate problem is to reduce the long-range goals and objectives to line items in the first year's budget.

The content and format of most strategic and tactical planning methodologies do not fit neatly into established budgeting practices. Most five- to 10-year strategic plans or three- to five-year tactical plans are documented in general terms. They list objectives, as well as business problems and opportunities. The plan may include briefs for proposed systems, along with estimates of costs and benefits. Implementation schedules are roughly sketched over a multiple-year calendar. The plan is organized by project rather than by the type of resources required.

Resource plans are essential to translating long-range plans into budgets. Even the more complete methodologies, however, do not generate resource requirements in enough detail to relate them to budget line items. To make the transition from long-range plan to annual budget, an operational (budget-year) plan must be formulated. Operational planning involves refining initial estimates in the long-range resource plan.

To develop an operational plan:

■ Review and reassess the relative priorities of current and planned projects.
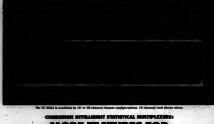
■ Select specific projects for the near-term,

This past year's strategic planning efforts may have put you and your firm's top management on the same wavelength at last. Management may even agree to a five-year plan for revitalizing the systems department. The challenge now is to translate that plan into a first-year budget.

budget-year segment of the company's MIS long-range plan.

■ Rework the near-term segment for the upcoming fiscal year to achieve the appropriate level of detail for budgeting purposes.

After reviewing priorities and selecting the year's projects, a detailed estimate of required expenses should be developed for each one.

The monetary outlay to make progress toward the

near-term segment of the MIS long-range plan represents incremental DP costs. Budgeting also encompasses two other dimensions: ongoing costs to maintain the status quo and unanticipated projects that are not parts of the plan but must be addressed as consequences of pressing regulatory or marketplace directives.

While the prior year's actual expenses provide an accurate basis for projecting

ongoing costs for the upcoming year, it is obviously more difficult to ensure that adequate funding is set aside for unanticipated requirements. A useful technique is to define a contingency or research and development project category.

Experience with the unplanned project costs encountered over the previous several years should provide some guidance for determining the amount to allocate for

contingency purposes.

All operating expenses, including those for ongoing, unanticipated and planned activities should be presented in a format that itemizes expenditures across six resource categories. The following framework can be used as a model for organizing and documenting a complete DP operational plan in four sections.

Section 1: Application systems agenda. This sec-

tion should provide an in-depth discussion about each significant application system project for the upcoming fiscal year.

Projects of this nature include the study, design, programming, testing, documentation, training and installation of functional business systems and should be separated into three classifications of systems development effort:

■ Significant maintenance on existing systems.

■ Significant enhancements to existing systems.

■ Significant new systems development.

Narratives and exhibits should appear wherever appropriate for each of the following areas:

System description. This description should cover each system's expected capabilities and should explain how each system contributes toward solving business problems and/or capitalizing on opportunities. Each system should be clearly tied back to the MIS long-range plan to clarify and strengthen the justification for near-term funding and implementation.

Resource requirements. This subsection should project the costs required to implement each system and to sustain it as a part of ongoing operations. It should include an itemization of requisite resources and associated expenses for additional hardware, software, staffing, environmental facilities, supplies and administration, outside services and training.

Benefits summary. This comprehensive review of each project's anticipated tangible and intangible benefits should include supporting documentation that references relevant feasibility studies, reports, surveys, cost/benefit analyses and financial justifications.

Implementation schedule. The schedule should present estimates for major project milestones, such as anticipated start and completion dates for each system development phase.

Section II: Services and support agenda. Projects covered in this section include installation, use and management of system/ control software or some other aspect of a data center's operational environment. Also included should

MSA has more
realtime systems
than you can count
on your hands...

Sample resource subplans

be plans for disaster preparedness, security, project planning and control methodologies and standards and procedures.

Other projects to cover:

■ Studies on alternative hardware, software or organizational architectures.

■ Capacity measurement and projection.

■ Operating system upgrades.

■ Data base management system readiness.

■ Data communications capabilities.

■ Job accounting and user chargeback facilities.

Again, narratives and exhibits should appear as appropriate to address the same four topics cited in Section I.

Section III: Resource requirements summary. The various resources needed to

implement the projects discussed in Sections I and II should be covered as a whole in this section. Rather than being examined on a project-by-project basis as in the above two sections, resource requirements for all of the year's identified projects should be assembled into categories and reported in resource subplans that clearly depict projected changes across a yearly calendar as follows:

Hardware subplan. Indicate any anticipated noteworthy equipment configuration upgrades or replacements. Provide pertinent detail, if available, for:

■ Types of equipment (CPU, memory, modems, controllers, direct-access storage device, tape and printer).

■ Vendor.

■ Target installation date.

■ Approximate costs (purchase prices, monthly rent and so forth).

Software subplan. List proposed acquisitions of proprietary or commercial software packages during the planning period. Provide pertinent detail, if available, for type of software, vendor, target installation date and approximate costs (license fees, monthly rent and so on).

Staffing subplan. Tally staffing requirements to reflect additional staffing through the planning period.

An examination of requirements in this area should produce projected monthly figures for skill type, number and employment costs (salaries, benefits, taxes, recruiting and so on) of people necessary to provide adequate data processing support and services and to develop, implement and maintain new application systems within prescribed target dates.

Environmental facilities, supplies and administration subplan. Determine likely significant changes to the physical site, supplies consumption or administrative expense as a consequence of working on the year's projects:

■ Fire suppression systems.

■ Normal and emergency electrical power.

■ Air-conditioning.

■ Physical security.

■ Office acquisition.

Provide pertinent detail, if available, for the type of change, target date and approximate costs (purchase prices, monthly expenses and so on).

Outside services subplan. Indicate any expected noteworthy expenditures for data processing services to be supplied by concerns outside the company:

■ Consulting services.

■ Time-sharing activities.

■ Service bureau operations.

■ System analysis, design and programming.

■ Intercompany charges.

Provide pertinent detail, if available, for type of service, vendor, duration of service and approximate costs.

Training subplan. Improving the skills of data processing personnel to en-

A one-page synopsis should cover all the year's projects, cross-reference them to estimated costs to each of the six resource requirement categories and tally anticipated expenses by project.

able them to support project efforts implies training expense. For the skills that must be acquired, identify courses, costs and approximate travel allowance for each month in which training expense is anticipated.

Section IV: Resource allocation overview. This one-page synopsis should recap all the year's projects, cross-reference them to estimated costs in each of the six resource requirement categories and tally anticipated expenditures by project, as detailed in Sections I and II, and by category, as in Section III.

Appendices. Appendices should be included and referenced as deemed necessary to provide supporting detail when helpful.

Possible candidate topics include:

Pricing/reimbursement schedules. Data centers utilizing chargeback procedures can include current pricing schedules and a discussion of how full-cost reimbursement and/or accumulation of reservice is expected to be attained.

Feasibility studies, surveys, reports, special studies. A company also should provide any documentation that helps readers understand the plan. Examples include external studies and reports, internal feasibility studies or "white papers" to support specific recommendations.

After the operational plan is documented in this level of detail, transferring costs from each of the six resource subplans to budget worksheets is relatively simple. The task is streamlined by sorting budget line items according to the six resource requirement categories.

About the author

Kenneth E. Phelan is a senior consultant in the information systems consulting practice of Peat, Marwick, Mitchell & Co. in Minneapolis.

SYSTEMS & PERIPHERALS

HARD TALK
Tom Henkel
On Your Side

DEC, IBM race to grab limelight

The Keystone Kops are not dead. They're alive and well and working for Digital Equipment Corp. and IBM. The two firms are failing over themselves trying to rain on the other's parade.

On April 3, DEC scheduled a press conference in New York to announce its latest high-end VAX-11 processor, the 11/785. Held at the Windows on the World restaurant in lower Manhattan, the press conference was set to begin at 10 a.m. and segue into lunch at around 12:30 p.m.

Less than 24 hours before the DEC announcement, IBM sent invitations to its press conference, an announcement of a small System/36 and a rash of microcomputer-oriented software. That announcement was scheduled to begin at 1 p.m. at IBM's Madison Ave. office building (a good 30 traffic-ridden blocks away from the DEC announcement).

A coincidence? Don't bet on it. This is the second time IBM and DEC have scheduled press conferences at the same time. On Oct. 18, DEC held a press conference in Marlboro, Mass., to announce its Microvax system. About 48 hours prior to the announcement, IBM sent out invitations to its Manhattan press conference, scheduled for Oct. 18. There, IBM announced the 3270 Personal Computer and the Personal Computer XT/370 plus about 20 unrelated products.

Strategy involved

Can it be the marketing wizards at IBM and DEC naturally choose the same day to announce their products? There is undoubtedly a strategy involved in pitching the perfect date for a product announcement. Perhaps both DEC and IBM have honed that selection process down to such a science that they are driven to always pick the same day. Chances are, though, the marketing geniuses at both companies are so competitive they can't stand to see their competitor get an open shot at the limelight.

So which company is trying to step on the other company's toes? In both cases, DEC announced its press conference well in advance of IBM's. But in both instances, IBM announced many more, and more significant, products than DEC.

Did DEC get wind of pending IBM announcements and make a hurry-up attempt to steal part of the show? Or did IBM use its massive size to round up a bunch of products and announce them just to take away some of DEC's thunder?

Two possible reasons

In the April 3 case, DEC had not one, but two possible reasons for choosing that date for an announcement. C. Gordon Bell, the former vice-president of engineering for DEC, was slated to speak on what is going on inside DEC. The

CDC unwraps storage products for Cyber 170 Series 800 line

By James Connolly
CW Staff

MINNEAPOLIS — Control Data Corp. has announced a 2.5G-byte disk subsystem, mass storage controller and 550-byte cartridge storage system for its Cyber 170 Series 800 family of mainframes.

The CDC 895 Disk Storage Subsystem contains four independent disk spindles that provide a metered capacity of 2.4G bytes each for a total of 9.6G bytes per subsystem. The spindles are stored in a single cabinet and feature fixed-head disk ensembles.

According to the company, the average disk seek time is 18 msec, providing improved response time and increased throughput over the existing CDC 885. The 895's 2M byte/sec burst-transfer rate is said to be twice as fast as that of the 885.

The 895 includes data interface and dual-access control for all of the disk spindles in a subsystem. The dual access was designed to allow for any two control units to transfer data simultaneously from any two or up to 16 spindles in a subsystem. It is said to feature thin-film read/write heads and a recording density of 12.3M bit/sq in.

The CDC 7165 mass storage controller features two independent control units, each providing a path for simultaneous transfer of data between peripheral processor channels and the 895. CONTROL DATA is what was designed to control up to four 895s totaling 15 spindles.

The CDC 7990 Mass Storage System was designed as an extension to disk file storage subsystems and as an alternative to magnetic-tape storage. It features 170M-byte cartridges stored in a system of cells providing 5.1G bytes of storage per square foot of floor space. It includes a storage controller and storage module storing up to 55G bytes. Each controller can control

HP reduces prices of OA systems

PALO ALTO, Calif. — Hewlett-Packard Co. has announced price reductions ranging from 43% to 54% on three of its office automation systems and unveiled four preconfigured HP 3000s designed for office automation applications.

The prices of the HP 3000 packaged systems represent reductions ranging from $3,500 to $18,800 compared with their separately priced components, HP claimed.

In addition, HP is offering the following three office automation configurations at reduced cost:

■ Four HP 150 personal computers with six software packages for $15,000.

■ Four HP 2628A word processing and graphics terminals with five software packages for $15,000.

■ Two HP 2628A word processing and graphics terminals, two HP 150 personal computers and nine software packages for $22,000.

The four specially configured HP 3000 systems include:

■ HP 3000 Series 39 with 1M byte of main memory, a 55M-byte Winchester disk drive with integrated cartridge tape backup, two communications controllers and a terminal as a systems control console. The price is $89,974, an $18,800 reduction.

■ HP 3000 Series 39 configured the same way, but with a 122M-byte disk. It is priced at $45,924.

■ HP 3000 Series 42 with a 1M-byte main memory and with disk caching. It is priced at $63,424.

Have a story about graphics?

Computerworld's June Special Report will take a look at graphics systems. We will look at graphics on mainframes and graphics on micros. We will look at why DP users are spending so much time and money to draw those pictures. We will find out who is using those pictures and how they are using them.

The Special Report will focus on graphics from business graphics to computer-aided design, from stand-alone microcomputers to integrated systems. Contributions to the Special Report should take one of two forms: a tutorial article discussing an issue or trend or a specific application story outlining a particular firm's experience with a graphics system or package.

Articles must be typed, double-spaced and range in length from four to six pages. Artwork such as charts, graphs and photographs is encouraged.

Authors should include a brief biography.

TI enhances several CPU lines

DALLAS — Texas Instruments, Inc. has announced six additions to its Business System 600 and 500 series of small business systems and added three models to its 300A series computers.

The Business System 300A models are said to feature the addition of local-area network capability, ergonomically designed terminal enclosures and a 1M-byte main memory capacity.

The Business System 600 and 800 series models feature the addition of 5-in. Winchester WD900 subsystems with 128M-byte or 432M-byte formatted storage and ½-in. streaming tape drive for backup.

The announced Business System 600 and 800 models use TI's standard Model 931 terminal and support the languages, communications and utilities supported by existing Business System 600 and 600 models.

The announced models are:

■ The 600A with 512K- or 1M-byte

Lisp offers entry-level LMI Lambda
Artificial intelligence system for use in office environments

CULVER CITY, Calif. — Lisp Machine, Inc. has announced an entry-level version of its LMI Lambda artificial intelligence system for use in office environments.

LMI Lambda/E is based on the Lisp language and is intended for AI research and applications. It is equipped with a 22-bit Lisp processor and provides computing power similar to that of the full-size LMI Lambda in a package slightly larger than a two-drawer file cabinet, according to the company.

A special cooling fan and low-noise disk drive are said to help it fit into office automation and similar applications.

The product features a 166M-byte Winchester disk drive and a 12-slot card cage.

The LMI Lambda/E can be used as a stand-alone machine, offering the power of Lisp Machine's Lisp (extended Zetalisp) environment, or as a workstation on a local-area network using a rack-mount LMI Lambda or other host computer as a file server, the vendor said.

Lisp software supplied with the machine can confer Lisp-like attributes on non-Lisp file servers, which lets it add intelligence to traditional data bases.

According to the company, the LMI Lambda/E can be utilized by OEMs seeking a delivery vehicle for expert systems and other artificial intelligence applications packages intended for use in an office setting, as well as by software developers for program development.

The LMI Lambda/E, scheduled for deliveries in May, is priced at $46,500.

Lisp Machine is located at 2016 S. Sepulveda Blvd., Culver City, Calif. 90230.

PROCESSORS

ARIEL CORP.
FFT 523

Ariel Corp. has announced the FFT 523, a single-card, fast Fourier transform (FFT) processor for the Hewlett-Packard Co. Series 300 desktop processors.

The FFT 523 plugs into a single backplane slot of the HP systems and performs FFTs by execution of a single program line in Basic or Pascal. Disk-based, machine-language driver routines provided with the 523 make the host-peripheral interface transparent to the user, the company said. Operating on 16-bit integer data, the FFT 523 is said to transform arrays of up to 1,024 complex points in a maximum of 0.3 msec. Two or more FFT processors can be installed in a single host for increased throughput, the company noted.

The FFT 523 is priced at $1,800 in single quantities, according to the vendor.

Ariel, 600 W. 116th St., New York, N.Y. 10027.

DATA STORAGE

CORVUS SYSTEMS, INC.

Corvus Systems, Inc. has announced that it has included its Omninet local-area network interface in its line of Winchester disk drives. The Omnidrive disk drives reportedly also have no need for a dedicated disk server in network applications.

The Omnidrive disk drives use a 5 4-in. Winchester disk and replace most of the existing line of Corvus drives, according to the vendor. The drives will be available for the IBM Personal Computer and Personal Computer XT and the Corvus Systems Corvus Concept, Digital Equipment Corp. Rainbow 100, Apple Computer, Inc. Apple II, Texas Instruments, Inc. Professional and the Zenith Data Systems Z-100 computers.

The Omnidrive systems are available in the following storage capacities at the following prices: 5.5M bytes, $1,990; 11.1M bytes, $2,495; 16.6M bytes, $3,195; and 45.1M bytes, $4,995, according to the vendor.

Corvus Systems, 2100 Corvus Drive, San Jose, Calif. 95134.

IMPERIAL TECHNOLOGY, INC.
Megaram; Megastream

Imperial Technology, Inc. has announced its Megaram solid-state memory and Megastream disk-emulating system for the Digital Equipment Corp. VAX-11 series of computers. At the same time, the firm announced a streaming tape drive option for Megaram.

Megaram reportedly eliminates the rotational and head-positioning delays common to systems with rotating disks. It attaches to the Unibus of the VAX-11 processors and is said to be able to emulate either the RL01/RL02 series or the RK06/RK07 series of DEC disk drives.

The Megaram units are priced starting at $18,900 for the basic 2M-byte unit, and the cost increases by $4,500 for each additional 1M byte of

SYSTEMS & PERIPHERALS

Continued from page 66
storage up to 32M bytes.

Megastream, the tape drive option, is said to enable data stored in Megaram to be maintained in the event that ac power fails. The combination of Megastream and Megaram reportedly provides a nonvolatile, solid-state storage capability.

Megastream is housed in a 7-in., rack-mounted chassis and has a formatted capacity of 33M bytes on a removable 14-in. tape cartridge.

Megastream is priced at $6,500.

Imperial Technology, 831 S. Douglas St., El Segundo, Calif. 90245.

TERMINALS

ANALOGIC CORP.
Linker 100

Analogic Corp. has announced a terminal that features serial communications with industrial monitor and control systems.

According to the vendor, Linker 100 can communicate with a remote host computer or with remote single intelligent peripherals from a central location via an RS-422 or RS-232C port.

Linker 100 is user-programmable for performing ramp/soak, cascade, ratio or custom algorithms.

The price for the single unit is $695, with delivery six weeks after receipt of order.

Analogic, Audubon Road, Wakefield, Mass. 01880.

NATIONAL COMPUTER COMMUNICATIONS CORP.
Tiny-Term

National Computer Communications Corp. has introduced a 14-lb CRT terminal that reportedly features an 80-col. by 25-line format.

Tiny-Term is said to feature a green-phosphor display, 14 programmable functions, two RS-232C ports and 128 graphics characters. An optional integral modem capable of storing up to 28 telephone numbers is available.

The asynchronous terminal has block-mode and full editing capabilities, the vendor said. It features up to 19.2K bit/sec communications speed.

Tiny-Term is priced at $450; the 300 bit/sec integral modem costs $395, and a 300/1,200 bit/sec modem option costs $595.

National Computer Communications, 260 West Ave., Stamford, Conn. 06904.

GRAPHICS SYSTEMS

MCDONNELL DOUGLAS AUTOMATION CO.
E-100T

McDonnell Douglas Automation Co. (McAuto) has announced a graphics workstation for its Place robotics cell design and simulation system. The E-100T is reportedly a tabletop version of the company's E-100 vector refresh display.

The terminal is said to be able to access Unigraphics, McAuto's computer-aided design and manufacturing system, to create cell geometry for Place. It is offered in black-and-white or color versions.

The E-100T is priced at $65,000

$73,000 for color display, prices which are said to be 40% lower than the E-100T's predecessor.

McAuto, P.O. Box 516, St. Louis, Mo. 63166.

POWER SUPPLIES

VII MANUFACTURING CO.
Model WP-29A

Vii Manufacturing Co.'s Test Equipment Division has introduced a variable-output, isolated ac power source, the Model WP-29A. The product reportedly provides ac output from 0V to 150V or 0A to 2.25A, continuous at 60Hz.

The WP-29A weighs 15 lb and is priced at $167.

Test Equipment Division, Vii Manufacturing, 335 E. Price St., Philadelphia, Pa. 19144.

BOARD-LEVEL DEVICES

EVENTIDE, INC.
WERP-16 board

Eventide, Inc. has announced a 1M-byte memory board with 256K-bit chips for the Hewlett-Packard Co. Series 200 desktop computers.

The WERP-16 board is designed to provide four times the memory density of previously available boards, according to Eventide.

The board is intended for use with the HP 9816, 9836 and 9836 computers, providing extra memory without

expansion interfaces.

The board is available, priced at $4,300. Quantity discounts are available.

Eventide, One Alsan Way, Little Ferry, N.J. 07643.

ILC DATA DEVICE CORP.
BUS-64108

ILC Data Device Corp. has announced an MIL-STD-1553 Manchester II converter, BUS-64108, with encoding and decoding capabilities.

The BUS-64108 is said to include all functions for an interface between an MIL-STD-1553 serial multiplexer bus transceiver and an eight- or 16-bit parallel tristate highway.

Other features reportedly include encoder/decoder and dual-rank I/O registers, valid word, valid address

*You're the
of our*

We build computers
for the way
you do business.

Computers matched
to your customers'
applications.

and fault flags and wraparound built-in test. It is packaged in a 1.1- by 1.7-in. hermetically sealed unit, the vendor said.

The BUS-64108 is priced at $450, with 90-day delivery.

ILC Data Device, 105 Wilbur Place, Bohemia, N.Y. 11716.

DATA-SUD SYSTEMS/U.S., INC.
DGB22EB

Data-Sud Systems/U.S., Inc. has announced a digital output board designed to be compatible with the VMEbus and to provide the user with 32 isolated channels.

The DGB22IEB digital output board is said to feature hermetically sealed, double-contact, electromagnetic relays that are magnetically shielded and protected by a transient voltage suppressor. Output status is displayed on the front panel by eight LEDs, with display groupings selected by a four-position switch.

The board is priced at $886 and is available now.

Data-Sud Systems/U.S., 3219 S. 48th St., Tempe, Ariz. 85282.

CYBERCHRON CORP.
CDM-82/25E

Cyberchron Corp. has introduced a 1M-byte memory card for Digital Equipment Corp.'s LSI-11 and Microvax I board-level products.

Based upon 64K-byte dynamic random-access memory, CDM-82/25E offers full byte parity, on-board software compatibility parity control and status registers, the vendor said. The board supports direct memory access protocols and has 22-bit addressing capability through 4M bytes, according to the vendor. The product reportedly runs delay-line timing, and its memory array is fully buffered.

CDM-82/25E costs $1,995.

Cyberchron, P.O. Box 196, Garrison, N.Y. 10524.

INTEGRATED SOLUTIONS, INC.
IS-588

Integrated Solutions, Inc. has announced an integrated slave CPU on the Digital Equipment Corp. LSI-11 bus.

The IS-588 is based on the Motorola, Inc. 68000 microprocessor and was designed to coexist on the LSI-11 bus with either a host IS-68E board or with a DEC LSI-11/23, LSI-11/73 or Microvax. The dual-bus architecture of the card is said to permit all slaves to execute their own programs simultaneously at full speed without using the LSI-11 bus.

The card reportedly will operate at 12 MHz or with a 10-MHz option, with no wait states.

The IS-588 is priced at $2,895 for the 12-MHz version and $2,395 for the 10-MHz model. Quantity discounts are available.

Integrated Solutions, 2240 Lundy Ave., San Jose, Calif. 95131.

EMULEX CORP.
SC7000

Emulex Corp. has announced a disk controller for connecting multiple multivendor disk drives to Digital Equipment Corp.'s VAX-11/780 and VAX-11/750 superminicomputers.

The SC7000 disk controller is said to utilize bipolar, bit-slice microprocessor technology. It is said to accommodate up to four physical (eight logical) industry-standard storage module drives or Winchester-type disk drives of 525M bytes or more capacity. It is also designed for serial data transfer rates of up to 1.2M byte/sec.

The controller is an extended-hex-size printed-circuit board that plugs into the bus of the VAX-11/780 via one of three available RH780 backplane slots or into one of two slots in the Emulex U-Master chassis, which installs in the VAX-11/750. According to the company, the controller is transparent to DEC software and diagnostics.

Delivery is 90 days after receipt of order. List price for the SC7000 is $8,960, with quantity discounts available.

Emulex, 3545 Harbor Blvd., P.O. Box 6725, Costa Mesa, Calif. 92626.

TIL SYSTEMS LTD.
ZP1682

TIL Systems Ltd. has announced a 32-bit, multibus processor card designed by the Electrical Engineering Department of the University of Toronto. It reportedly features vectored interrupt support, 256K bytes of random-access memory, up to 128K bytes of read-only memory, two serial ports and a parallel port.

The board, the ZP1682, is reportedly built with several National Semiconductor Corp. components, including an NS16081 floating-point unit and an NS16082 main memory unit, which is said to implement a demand-paged virtual memory management architecture similar to that of the Digital Equipment Corp. VAX-11.

The ZP1682 is priced at $3,124.

TIL Systems, Suite 1100, 60 Yonge St., Toronto, Ont., Canada M5E 1H5.

SYSTECH CORP.
VPC-2200

Systech Corp. has introduced the multibus VPC-200 Versatec, Inc. printer controller.

The product has a direct memory access, two-channel, multibus printer controller. One channel supports a Versatec, Inc. printer/plotter in either single-end or long lines differential mode. The second channel supports any standard compatible printer at rates up to 10,000 line/min, the vendor said.

The controller offers automatic printer selection. It also includes a

continued from page 69

self-test feature, which does not require host software support, for the Versatec printer and for a Centronics Data Computer Corp./Dataproducts Corp. printer. A Unix driver is supplied with the controller to accelerate implementation on-site, a company spokesman said.

The price is $650.

Spizock, 7630 Miramar Road, San Diego, Calif. 92126.

VOTAN, INC.

VSP1000 Voice Management System

Votan, Inc. has introduced a voice processor board that is said to incorporate voice recognition, speech compression and telephone interfacing facilities on a single board.

In addition, the company has announced the latest release of its Voice Management System, based on the new board, which provides eight simultaneous channels of voice I/O processing in a single chassis.

The VSP1000 voice processor board features continuous speech recognition, which reportedly allows an individual to speak to the unit in a normal conversational flow, without pauses between words. In addition, a word-spotting capability enables the system to pick out target words from a stream of normal conversation.

An option offered with the board is speaker-independent recognition, which the company claimed will recognize anyone's voice. It can understand a limited vocabulary without prior enrollment in the system. The digits zero through nine and the words "yes" and "no," as well as custom vocabularies, are available.

Other features of the VSP1000 include autoanswer, autodial and Touch-Tone encoding and decoding, plus the ability to operate over standard telephone lines. The board contains all the hardware necessary to service a voice channel under the control of a general-purpose system processor. The system processor may be any single-board, 8- or 16-bit CPU that interfaces with Intel Corp.'s Multibus.

The basic configuration consists of a 16-slot Multibus chassis, an Intel 8086-family system processor, 1M byte of random-access memory and one VSP1000 voice processor board per voice channel. Other hardware needed includes disk drives, a controller and a CRT terminal.

The VSP1000 is available in single quantities for $2,500, with volume discounts available. The price for a standard, four-channel Voice Management System is $27,000; an eight-channel unit is $25,000. The speaker-independent recognition option is priced at $500 per four channels.

Votan, 4487 Technology Drive, Fremont, Calif. 94538.

AUXILIARY EQUIPMENT

INTERNATIONAL INFORMATION MANAGEMENT CONGRESS

Record Management Technology

The International Information Management Congress (IMC) has announced a training program designed to instruct employees in storing and retrieving manual files and computer memory.

The program, Record Management Technology, includes 297 color slides

and a 52-page book, the vendor said.

Topics include records storage and retrieval, reprographics, micrographics and records management trends.

The training program costs $350.

IMC, Publication Sales, P.O. Box 34404, Bethesda, Md. 20817.

TEXAS INSTRUMENTS, INC.

Nubus

Texas Instruments, Inc. has announced that it is licensing its 32-bit Nubus technology to commercial and noncommercial users.

Designed at MIT, Nubus is a 10-MHz synchronous bus that reportedly provides a 37.5M byte/sec bandwidth and a processor-independent, memory-mapped architecture.

Nubus licenses to commercial us-

ers for a one-time $2,000 fee. Noncommercial licenses are available for $200.

Texas Instruments, Data Systems Group, 17281 Cartwright Road, Irvine, Calif. 92714.

MTI TECHNOLOGY CORP.

MTI 3300

MTI Technology Corp. has announced an exerciser designed to perform seven user-selected qualification tests automatically on floppy disk drives before they are used in a system.

The MTI 3300 reportedly can be used in the factory or in the field and will display results directly on an integral CRT internal screen and optional thermal printer. It is menu-driven and has a Help function.

It reportedly features a nonvolatile, electronically erasable programmable read-only memory for short- or long-term storage.

The base price is $4,930, with quantity discounts. The optional thermal printer costs $200; an optional four-channel multiplexer, $475; and a 230V, 50Hz option, $75.

MTI Technology, 3960 Mandarin Ave., Goleta, Cal. 93117.

A.B. DICK CO.

Magna Dataped

A.B. Dick Co. has announced a slim-line numeric keyboard designed to enhance statistical applications of the firm's Magna information processing systems line.

The Magna Dataped connects to the main keyboard via a 24-in. flat

The first professional computer that looks at information the way you do.

Place any document under the scanner, push a button in seconds...

...it will appear on the monitor. You can store the whole document or isolate just part of it.

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...and add text to create a new document, which can be printed or stored.

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If you would like a demonstration of The Wang PIC image processing system, call 1-800-225-9264. Or write to: Wang Laboratories, Inc., Business Executive Center, One Industrial Avenue, Lowell, MA 01851.

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Because this is one new product you don't want to overlook.

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The Office Automation Computer People.

MICROCOMPUTERS

MICRO HITS
Thomas W. Madron

Two architectures seen for IBM nets

For months, industry analysts have been predicting that IBM shortly will announce two microcomputer-oriented local-area networks using two quite different topologies and two quite different communications media. As these rumors persist, it may be time for at least a generic description of the two local-area network approaches.

Rumor has it that one announcement will cover a token passing ring local-area network using a chip set developed by Texas Instruments, Inc. The second rumor suggests a broadband (CATV technology) carrier-sense multiple access/collision detection (CSMA/CD) local-area net allegedly being developed by Sytek, Inc. of Mountain View, Calif.

Both token passing and CSMA/CD are local-area network access techniques that address the problem of collisions when two or more signals are present simultaneously on the communications medium.

Token passing is a collision-avoidance technique in which each station is polled and must itself pass the poll along. CSMA/CD is an access method that manages collisions of data packets when they occur. Token passing is employed most frequently with a ring topology, while CSMA/CD is most commonly found with a bus-structured local-area network. Either access method can exist on virtually any medium and with either baseband or broadband systems.

With a CSMA/CD system, collisions are assumed to be a normal operational occurrence. Every network device listens all the time, but defers transmitting if the cable is in use. But in a highly loaded CSMA/CD network, the periods of silence may be very short, resulting in many collisions, which reduces network throughput since many retransmissions are required.

In baseband systems such as Ethernet, collisions are detected by adding a dc bias to the signal and having all stations look for a dc level greater than that of a single transmitter. On a broadband system (which cannot pass dc signals), when the transmitter receives the reflection of the message, bit-by-bit comparison is accomplished. Any discrepancy is assumed to be the result of a collision, and the signal is retransmitted. Broadband examples using CSMA/CD are Localnet 20 from Sytek and Net/One by Ungermann-Bass, Inc.

Token passing, which is still used largely for ring topologies, became commercially available in 1983 on systems with bus structures. Each network device is polled, and so that polling is done, each station has an opportunity to transmit. The token is simply the location of the poll on a polling list. Polling need not
See NETS page 82

Thomas Madron is Manager of Computer Services at North Texas State University, Denton, Texas.

Price, more than support, influencing volume micro sales

By Paul Korzeniowski
CW Staff

DALLAS — MIS departments seem willing to sacrifice microcomputer support for lower prices, according to industry analysts who spoke at the Fortune 1,000 Personal Computer Market Forum held here early this month.

"Last year marked a watershed point in the microcomputer industry," proclaimed Egil Juliussen, chairman of Future Computing, Inc., the forum sponsor. "It marks the shift from volume sales through retail channels to direct sales channels."

IBM's direct sales force gained control of Personal Computer sales and increased its [large company] market share from 14% in 1982 to 44% in 1983."

Price is the major factor driving volume purchasers toward direct sales, speakers agreed. To compete on price with direct sales forces, retailers are unbundling training and support.

> 'Last year marked a watershed point in the microcomputer industry.' — Egil Juliussen, Future Computing, Inc.

"There's no such thing as a free lunch," stated Ed Esenes, president of Future Information Systems, Inc., a New York City dealer. "I can cut the hardware prices for volume sales customers, but they pay for training classes and support, which normally are free."

Direct sales may offer lower prices, but customers receive only pieces of a total system, said Anthony Morris, president of Morris Decision Systems. "A hardware vendor cannot provide a system solution," he said. "Morris puts the pieces together for its customers. Direct sales customers leave the consumer with that task."

Fearing the distribution shift had year was MIS departments' increased involvement in determining microcomputer purchases. "Microcomputer purchasing decisions shifted from a bottom-up to a top-down orientation," Juliussen claimed.

A Future Computing survey of large
See SURVEY page 82

MIS slow to switch micro packages

By Paul Korzeniowski
CW Staff

MIS departments take a slow, plodding approach to evaluating software in the rapidly changing microcomputer arena, managers recently told Computerworld. "Once a company has chosen microcomputer software packages, inertia sets in, and [the firm is] slow to switch to other programs," said Thomas Sampos, partner at Arthur Young & Co.

This inertia is deliberate, one MIS manager said. "Once a company has used a particular package for a period of time, a tremendous amount of training time has been invested," said Andrew Langlois, MIS director at Moore McCormack, Inc. in Stamford, Conn. "It justify retraining users on another package, it has to have

more than additional bells and whistles, such as a nicer screen or a few additional functions. The package has to allow users to work more quickly, which increases the company's productivity."

Langlois' group waits a few months after a package is introduced before evaluation. "We wait until the bugs and hype die down," Langlois said. "Often, a package is not as good as initially advertised."

Managers noted that companies learn of significant new packages in a variety of ways: subscribing to end-user magazines, trade magazines and software review services; attending computer shows and seminars hosted by computer dealers; and listening to users.

"Sometimes the initial interest comes
See MIS page 82

Fortune communications packages to integrate 32:16 with IBM, Wang

REDWOOD CITY, Calif. — As one step in an effort to boost compatibility with industry standards, Fortune Systems Corp. early this month introduced two communications packages aimed at integrating the firm's multiuser 32:16 microcomputers within IBM and Wang Laboratories, Inc. environments.

Fortune's new 3780 remote job entry (RJE) and synchronous package (SNA) software will permit 32:16 users to share IBM and any other 3780-supported mainframe resources, said Robert Buebel, senior vice-president of marketing. The new software, said to permit transfer of either Ascii or Ebcdic data at speeds up to 9.6K bit/sec, is available now for $995.

The new Fortune-Wang interface allows 32:16 users to exchange documents and interact with products in the

Wang OIS environment, Buebel said. The interface will carry a $595 price tag. Like the 3780 emulation package, it requires Fortune's optional IBC board.

Within larger firms, "our communications strategy is to let 32:16 microcomputers coexist," remarked Fortune President James Campbell. "We'll go with a board-level network, when a de facto standard becomes clear."

Fortune's 32:16, based on the Motorola, Inc. 68000 and running the company's version of the Unix operating system, is said to both small businesses and large organizations "looking for fairly classical word processing and office automation solutions," Buebel said.

Unix "means safety" for large firms because of its portability, multiuser capability and built-in features, Buebel said.
See FORTUNE page 80

Micropro introduces spelling checker

SAN RAFAEL, Calif. — Micropro International Corp. has introduced Correctstar, a 65,000-word spelling checker reportedly containing 90% of the most frequently used English words.

Automating the proofreading and correcting process, the product increases typing speed, a spokesman said.

"Now you can use the word you want, whether or not you know how to spell," said Donald Marro, vice-president of marketing.

Correctstar works with Micropro's Wordstar word processing package. To access Correctstar, users type "S" on Wordstar's opening menu, Micro-

pro said. After suggesting a word, the user can correct the word as suggested, correct it globally, show the next or previous instance of the word, correct the word from the keyboard, add the word to a personal dictionary, bypass it one time, ignore the word or return to Wordstar, according to the vendor.

The system is able to analyze words based on phonetic and linguistic principles and to recognize the patterns that characterize language," Marro said.

A user can create a personal dictionary of 1,500 words, which can include proper names or specific terms. When these names are used in later

documents, Correctstar spells misspellings, according to the vendor spokesman.

Correctstar requires 192K bytes of random-access memory and costs $195.

A version for the IBM Personal Computer is available now. Versions for Radio Shack's TRS-80 Model 2000, Digital Equipment Corp.'s Rainbow and Texas Instruments, Inc.'s Professional microcomputers will be added this month.

Additional information on Correctstar is available from Micropro International, which is located at 33 San Pablo Ave., San Rafael, Calif. 94903.

Direct micro said to be IBM-compatible

SANTA CLARA, Calif. — Direct, Inc. has introduced a personal computer for business uses said to be IBM Personal Computer-compatible and to emulate IBM 3270, 3278 and 3279 terminals and Hewlett-Packard Co. System 3000 terminals.

The Direct IPC features the Microsoft, Inc. MS-DOS 2.0 operating system, 128K bytes of internal memory, two floppy disk drives, two RS-232 asynchronous serial ports, one parallel printer port and five expansion slots, Direct said. Customizations can include memory expansion to 640K bytes, a color monitor with graphics and additional floppy disk drives.

The IPC's keyboard is said to be an improvement on the keyboard of the IBM Personal Computer because shift and return keys are in more familiar positions and LED indicators are used on the IPC's Caps and Num-lock keys to show status.

The computer's optional communications capabilities include emulation of the HP 2622A terminal, providing linkage with HP 3000 minicomputers, and IBM 3278 and 3279 coaxial interface support, permitting users to link directly to IBM 3274 or 3276 controllers. The latter option reportedly permits either Binary Synchronous Communications (BSC) or Systems Network Architecture/Synchronous Data Link Control (SNA/SDLC) host access depending on the controller's configuration. Options also allow the IPC to emulate IBM 3270 BSC or 3270 SNA/SDLC terminal communication.

"We feel we're more compatible with the IBM host environment than the IBM Personal Computer," commented Direct's vice-president of marketing, Homer Jamison.

In its basic version, the IPC comes with an amber monochrome monitor. A color graphics adapter and color monitor are also available. The basic IPC retails for $3,195. An IPC XD version, with a 10M-byte Winchester disk, 256K bytes of memory, one floppy disk drive and a monochrome monitor, is available for $5,195.

Direct is located at 4201 Burton Drive, Santa Clara, Calif. 95054.

TI unveils Basic compiler

DALLAS — Texas Instruments, Inc. has introduced a high-speed MS-Basic compiler that the company said improves the performance of a Basic program as much as 130 times, with little or no modification.

The program runs on the TI Professional Computer and the TI Portable Professional Computer under Microsoft, Inc.'s MS-DOS 1.1 or 2.1 operating system.

The package is priced at $300, which includes a software diskette and a user's manual, the vendor said.

Texas Instruments can be reached through P.O. Box 402430, H-709, Dallas, Texas 75240.

MICROCOMPUTERS

SYSTEMS

ALLOY COMPUTER PRODUCTS, INC.
PC-Slave/16, Multinet enhancements

Alloy Computer Products, Inc. has announced a multiuser system, PC-Slave/16, and has enhanced its Multinet system.

PC-Slave/16, which uses an Intel Corp. 8088 microprocessor, fits in the expansion slot of an IBM Personal Computer and drives a dumb terminal—without degrading host performance, the vendor said.

With Alloy's PC-Real-Time Networking Executive, 12 PC-Slave/16s reportedly can be linked inside an Alloy expansion unit. Each slave is capable of running Microsoft, Inc.'s MS-DOS 2.1 or Digital Research, Inc.'s CP/M 80 operating system.

Prices for PC-Slave/16 range from $1,195 to approximately $17,000.

As a two-user system, Multinet includes a master microprocessor, two user processors, up to 102M bytes of Winchester disk storage, cartridge tape, floppy disk drive and the CP/M operating system, the vendor said.

Multinet can be expanded to include a maximum of 16 eight-user systems. Multinet can link microcomputers using Zilog, Inc. Z80B or Intel 8086 microprocessors, the vendor said. The system provides file updating, record updating, multiuser record locking and automatic print spooling, according to the vendor.

Multinet prices range from $12,995 to $104,000.

Alloy Computer Products, 100 Pennsylvania Ave., Framingham, Mass. 01701.

KAYPRO, INC.
Perfect Software replaced

Kaypro, Inc. has replaced the Perfect Software package software bundled with its Model 2, Model 4, Model 10 and Robie desktop personal computers with software from Micropro International Corp.

Model 2 now includes Micropro's Wordstar, Mailmerge, Calcstar, Datastar and Supersoft; Oasis Systems, Inc.'s Word Plus; Chang Laboratories, Inc.'s Profit Plan; Kaypro's Multiformat and Digital Research, Inc.'s CP/M operating system.

Model 4, Model 10 and Robie include Micropro's Wordstar, Mailmerge, Calcstar and Infostar (which includes Reportstar and Datastar); Oasis Systems' Word Plus; Kaypro's Supterm and Multiformat; Chang Labs' Microplan; Ashton-Tate's Dbase II and "Dbase II for the First-Time User"; and Digital Research's CP/M operating system.

Kaypro, 533 Stevens Ave., Solana Beach, Calif. 92075.

COMPUTER SYSTEMS
IBM/Personal Computer-Graphics

Computer Systems has introduced the IBM/Personal Computer-Graphics system, a workstation that features three-dimensional modeling and graphics processing.

According to the vendor, the system combines computer-aided design and color graphics functions with the flexibility of a graphics workstation in either stand-alone or remote terminal modes.

The system features an IBM Personal Computer with 128K bytes of random-access memory, a color moni-

tor, 400 char./sec matrix printer and two digitizers. It runs under IBM's PC-DOS operating system, and AT&T's Unix is optional.

The IBM Personal Computer-Graphics system is priced at $4,900.

Computer Systems, 36401 Harper Ave., St. Clair Shores, Mich. 48081.

PRINTERS/PLOTTERS/ PERIPHERALS

RADIO SHACK
DMP-110

Radio Shack has introduced a dot-matrix printer for the TRS-80 microcomputer line that features three printing modes, including letter-qual-

ity ward processing, data processing and bit-image graphics.

The DMP-110 reportedly provides a variety of font styles, including a cursive italic and micro font, as well as fonts for correspondence and data processing. All fonts on the DMP-110 can be elongated, the company said, and the printer supports the use of underline.

The correspondence font prints at 10- or 12-char./in. or proportional spacing. In correspondence mode, the printer operates at 35 char./sec. Half-height printing, superscripts and subscripts can be achieved using the printer's micro font typestyle.

The data processing mode allows printing 10-, 12- or 17 char./in. at speeds up to 50 char./sec in either standard, elite or condensed mono-spaced characters.

The DMP-110 may also be used to produce high-resolution, dot-addressable bit-image graphics, the company said.

The DMP-110 is priced at $599.95.
Radio Shack, 1800 One Tandy Center, Fort Worth, Texas 76102.

BOARD-LEVEL DEVICES

HEURIKON CORP.
HK68A version

The Heurikon Corp. has introduced 512K-byte and 1M-byte versions of its HK68A microcomputer board. The HK68A, which plugs into a multibus, reportedly also features four to eight serial ports, 32K bytes

of erasable programmable read-only memory, user programmable LEDs and dip switches and three programmable 16-bit counter/timer channels.

The increased memory of the HK68A reportedly allows it to run Unix programs without the need to add memory to the multibus.

The 512K-byte card is available for $4,460. The 1M-byte card is available for $5,465.
Heurikon, 3001 Latham Drive, Madison, Wis. 53713.

AUXILIARY EQUIPMENT

SPEECH PLUS, INC.
Calltext 5000

Speech Plus, Inc. has introduced

an IBM Personal Computer-compatible text-to-speech converter and telephone interface board that is said to enable a user to access text data in voice through any Touch-Tone telephone.

The product, called Calltext 5000, is said to combine a telephone interface with Speech Plus' text-to-speech system to provide voice output with unlimited vocabulary for the Personal Computer. It can be programmed to answer a telephone, obtain text data from a host computer and supply text data in voice to the caller, the company said. It can also initiate calls, according to Speech Plus.

Other features of Calltext 5000 include compatibility with the IBM Personal Computer XT bus interface, ability to connect to a telephone network via a modular jack, autoanswer and autodial, on-board speaker amplification and RS-232 serial port.

The Calltext board is priced in single units at $3,700, including interface software.
Speech Plus, 461 N. Bernardo Ave., Mountain View, Calif. 94043.

RAINBOW TECHNOLOGIES, INC.
Software Sentinel

Rainbow Technologies, Inc. has announced a custom-coded hardware device designed to prevent users from running licensed software on more than one machine at a time.

Software Sentinel is intended for use by software developers who produce complete software for the IBM Personal Computer, Personal Computer XT and compatibles. The plug-in device is said to act as a security key that must be present before the software will operate.

Available now, the device costs approximately $50.
Rainbow Technologies, Box 7300, Costa Mesa, Calif. 92626.

SOFTWARE

LYTRON SYSTEMS, INC.
Lois

Lytron Systems, Inc. has introduced Lytron Office Integration Software (Lois), a package that includes an operating environment, facility manager and DIF-to-Ascii data converter. Lois integrates different programs into a seamless operating environment and transfers data between applications, the vendor said.

Lois operates in four modes: single user; with Lytronnet (Lytron's local-area network); with other networks; and linked with a mainframe, the vendor said.

The program runs under IBM's PC-DOS or Microsoft, Inc.'s MS-DOS operating systems and costs $395, Lytron said.

Among the applications that run under Lois:

■ Scratchpad, an electric notepad that can create, modify, distribute or file notes and memorandums, available for $60.

■ Calendar, at $125, is a schedule planning program.

■ File Cabinet, priced at $100, files, cross-indexes and retrieves information by file name, title, significant person, key word or date.

■ Calculator, for $75, supports scientific notation, memory manipula-

Some data security methods work better than others.

lotion and financial modules.

■ Phone manager, which includes autodial capabilities, costs $150.

Lytron Systems, Building 3, 1675 N. 200 West, Provo, Utah 84604.

MICRO DATA BASE SYSTEMS, INC.
Knowledge Manager version

Micro Data Base Systems, Inc. has enhanced Knowledge

Manager, an integrated information system for the IBM Personal Computer.

The new version reportedly performs calculations three times faster than earlier versions and integrates with three additional Micro Data Base Systems modules: Kgraph, Kpaint and Knocus.

Knowledge Manager costs $600.

Micro Data Base Systems, P.O. Box 248, Lafayette, Ind. 47902.

CDEX CORP.
PC Expert

Cdex Corp. has introduced the PC Expert package, a computer-based training software package for the IBM Personal Computer.

The package consists of two training programs, "How to Use Your IBM PC" and "Cdex Training for DOS 2.0."

The first program helps users learn PC-DOS commands and special keys on

the keyboard. It also introduces the user to operating systems such as Digital Research, Inc.'s CP/M and AT&T's Unix, as well as the Basic programming language and various types of applications software.

The second training program provides more comprehensive instruction in beginning and advanced PC-DOS commands. The program includes concepts, disk preparation and copying, file operation, structure directories, fixed disk systems and advanced DOS commands.

The PC Expert is priced at $120.50.

Cdex, 5050 El Camino Real, Los Altos, Calif. 94306.

DOW JONES INFORMATION SERVICES
Accounting Series

Dow Jones Information Services, a division of Dow Jones & Co., Inc., has introduced the three core modules of its seven-part Accounting Series. The software, for the IBM Personal Computer and Personal Computer XT, is said to support generally accepted accounting practices.

The core programs — general ledger, accounts payable and accounts receivable — each include a free customer training seminar developed by the Arthur Young accounting firm and one-year access to a toll-free hotline. The programs of the package reportedly are menu-driven, require a minimum of keystrokes and feature a word processing style editor.

The series is said to feature an automatic audit trail. Users are also said to be able to do "what-if" calculations using the series' pencil-posting capability.

The three core programs each cost $1,000, the vendor said.

Dow Jones Information Services, Rt. 1 and Ridge Road, South Brunswick, N.J. 08852.

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VERTEX SYSTEMS
Xeno-Disk

Vertex Systems has announced the Xeno-Disk software conversion and production system for the IBM Personal Computer, Personal Computer XT and most compatible systems.

Xeno-Disk can read, write, format and duplicate nearly 60 different types of 5¼-in. double-density disk formats without additional hardware, Vertex said. In addition, 80-track formats reportedly can be supported with appropriate disk drives.

Running under IBM's PC-DOS or Microsoft, Inc.'s MS-DOS, Xeno-Disk modules are fully menu-driven, Vertex said.

Disk formats currently supported are said to include those of most popular computers running Digital Research, Inc. CP/M and CP/M 86, Radio Shack TRS-DOS 1.2, UCSD P-system, NEC Corp. NEC-DOS and European formats. Direct-disk format parameter input allows use of 40- and 80-track CP/M formats not currently available on the menu.

Vertex said optional utilities include 80Mats, a CP/M 80 emulator that simulates a CP/M 2.2 environment under PC-DOS or MS-DOS, and the 80Term terminal emulator, Vertex said.

Xeno-Disk is priced at $379.50. The 80Mats CP/M 80 emulator costs $99.50, and the 80Term terminal emulator costs $44.95.

Vertex Systems, 7950 W. 4th St., Los Angeles, Calif. 90048.

COSMOS, INC.
Revelation

Cosmos, Inc. has announced a relational data base management system for the IBM Personal Computer Radio compatibility with the Pick & Associates, Inc. Pick operating environment.

Revelation allows the user to develop a fourth-generation application and program generator that lets programmers can operate, according to the vendor. It also is said to provide communications to the IBM Personal Computer can move data, applications and programs up and down from the IBM Series/1, the Microdata Corp. Reality, the Evolution Computer Systems Corp. Evolution, the Applied Digital Data Systems, Inc. Asia Menter, the Ultimate Corp. Ultimate and the Prime Computer, Inc. Information minicomputers.

Revelation is said to feature a file size limited only by disk size, record and field sizes variable up to 65,535 characters, user-assigned primary record keys, direct-access retrieval of records, report writer with multiple sort levels, a dynamic I/O buffer to reduce file accessing time, menu and command drive and a free-form English query language.

Revelation is designed to operate with IBM PC-DOS and Microsoft, Inc. MS-DOS and to utilize data and programs developed for those operating systems and Pick.

It is available for a one-time license fee of $950, including dialects and manuals.

Cosmos, 129 Fernway Drive W., Morton, Wash. 98356.

INDECES SERVICES
X-Cell 3.1

Indeces Services has announced X-Cell 3.1, a data management system for the IBM Personal Computer.

X-Cell features data entry, data retrieval, sorting, report generation, numeric generation and documentation generation, the vendor said.

X-Cell allows the user to define and allocate field space for any combination of alphanumeric and numeric entries, according to Indeces. X-Cell features search and sort capabilities that allow for inclusive and exclusive retrievals and sorts by 15 fields at a time, the vendor said.

X-Cell costs $175.

Indeces Services, 9 Pinecrest Drive, Taunton, Mass. 02780.

BLAISE COMPUTING, INC.
C View Manager

Blaise Computing, Inc. has unveiled C View Manager and enhanced versions of its C Tools and C Tools 2. The software products run under IBM PC-DOS or Microsoft, Inc. MS-DOS.

C View Manager allows the system developer to design and save output screens, the vendor said. These screens can be recalled and displayed during a program run to inform the user about the program's status or to capture information, according to the vendor.

C View Manager works with Microsoft, Lifeboat Associates and Computer Innovations, Inc. C compilers. The product costs $275; source code for its C function library costs an additional $150.

C Tools reportedly possesses advanced string capabilities and the capability to access IBM Personal Computer hardware features, such as screen handling. It costs $125, the vendor said.

C Tools 2 works with PC-DOS 2.0, the vendor said. It costs $100.

Blaise Computing, 2034 Blake St., Berkeley, Calif. 94704.

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AT&T's introduction of Unix-based computer systems, meanwhile, is expected to prove a strong endorsement for the operating system. "The days of going out to find third-party [Unix] software developers are over," he maintained.

Fortune is located at 101 Twin Dolphin Drive, Redwood City, Calif. 94065.

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Outmoded business software applications reportedly can be created and run on the Eagle Computer, Inc. Spirit portable computer and Eagle XL personal computer with a new release of the Numbercruncher series of software products from Pyramid Data Ltd.

The Numbercruncher system for Eagle portable and personal computers includes all the features of Numbercruncher products currently available for the IBM Personal Computer and compatibles, PC jr and the Radio Shack 2000 personal comput-

The series provides a fourth-generation language said to enable users to modify their software. Products available range from the Numbercruncher I system, which allows users to create spreadsheets and reports, to the Numbercruncher III, which provides 7 features such as integrated relational data base management, the spokesman said.

Prices for the custom Numbercruncher series range from $99.95 for the Numbercruncher I to $695 for the Numbercruncher III, according to the vendor spokesman.

Pyramid Data, P.O. Box 10116, Santa Ana, Calif. 92711.

MIS from page 73

from users; other times it comes from the personal computer department," said G. M. Hughes, vice-president at Pfizer Pharmaceuticals, Inc. in New York. "Users learn of new packages as quickly as we do."

Users play a critical role in the review process, according to Langlois. "In addition to personnel dedicated to evaluating microcomputer software, users who suggest packages volunteer to guinea pigs," he said.

Evaluation involves give-and-take between the users suggesting a package and the microcomputer support team, said William O'Neil, director of microcomputing for The First Boston Capital

Group, Inc. in Tarrytown, N.Y. "Often, department senior managers choose a package and then turn to the MIS department for approval," O'Neil said.

The personal computer department weighs the user's suggested package against packages already approved for corporate use, O'Neil said. "There are 500 word processing packages for the IBM Personal Computer. Obviously, we can't support every package that a user desires, so we limit support to three packages for each application, such as word processing.

"The program must be easy to use and have on-line Help functions," O'Neil added. "Most users will not spend any time reading the

user manual."

Users wanting to add their program to the approved list must make a case for the software, according to Langlois. "The user must sell the new product's benefits to the microcomputer department," he said.

O'Neil listed cost savings as the primary criterion. "We wanted to transfer work to our word processing pool from minicomputers to microcomputers," he said. "So we added [to the approved list of packages] one microcomputer word processing package that resembled the minicomputer system. Savings in training costs justified the addition." Hughes said that after the evaluation process, users respect the department's choices.

SURVEY from page 73

companies found that 82% had designated a department to manage personal computers. In 77% of those firms, MIS was the department. "The remaining 23% assigned corporate personal computer decisions to the word processing or communications department," Juliussen reported.

The survey identified two key considerations for choosing microcomputers: the viability of the manufacturer and the micro's ability to communicate with a mainframe.

"The factors in selling to

Fortune 1,000 customers — access to the mainframe and established contacts — favor IBM," said John Burns, president of Microcraft Corp.

Future Computing's survey supported Burns' assertion. The survey showed the numbers of installed micros: 56% are IBM; 16% are Apple Computer, Inc. micros; 8% each are from Radio Shack and Hewlett-Packard Co.; and 4% are Wang Laboratories, Inc. systems.

IBM was listed as the first choice of 67% of the companies surveyed. "No preference" was the second choice, with 24%. HP, with 6%, was the only other manufacturer

with a significant market presence.

Among companies that had signed volume purchase agreements, IBM has signed 69% of the companies surveyed; Apple, 6%; and Wang, Radio Shack, HP and Digital Equipment Corp. each 5%, according to the survey.

Future Computing said that IBM's sales to large companies comprise 60% of its Personal Computer sales, as opposed to 40% at DEC and 65% at Wang. On the other hand, 15% of Apple's and 10% of Radio Shack's personal computer revenue were said to come from the large business market.

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take place in a centralized fashion, because each node can pass the token along following a transmission.

Because there are no colli-

sions, a token passing system's capacity may be accurately calculated, although a token passing scheme relies on all devices being serially polled, which implies its own set of problems.

A token passing scheme can degenerate under heavy loads, which are measured in terms of the number of connections, since the token must pass every node before returning to any given connection.

A rather heated controversy has risen between supporters of CSMA/CD and token passing systems, and both systems have advantages and disadvantages. At this writing, neither system is clearly superior.

With appropriate network management techniques, either system will prove adequate. From a managerial perspective, the real issue is whether the local-area network vendor's overall design philosophy can meet the buyer's system needs.

Because support for the schemes seems to be as much taste as engineering principle, affected even more by marketing prowess, it is not surprising that IBM may launch both technologies into the increasingly crowded local-area network field. The advantage to the industry is that with IBM's backing, some consistency may come out of the chaos of local-area networks now on the market. The disadvantage is that IBM will take yet another step toward total domination of the industry.

COMPUTER INDUSTRY

Seeing red hinders high-tech trade

A presidential administration that campaigned partly on the promise of encouraging free enterprise and reducing government regulation and paperwork appears totally committed to shackling the competitiveness of high-technology industries.

Recent actions by the Reagan administration are certain to reduce the ability of high-tech firms to compete in the international marketplace. Digital Equipment Corp., the apparent servicing player in a very muddled stemming case late last year, recently was told it would have to abide by more stringent export regulations [CW, March 26]; the Department of Defense was empowered to review high-tech exports to allies suspected of being diversion points to Eastern bloc nations [CW, April 2]; and attempts to enforce U.S. export regulations within the borders of other countries, such as the UK [CW, April 9], have raised hackles.

It is idiosyncratic of self-professed conservative politics that the first commandment of free enterprise is promptly ignored whenever the flag of the Red Threat is waved.

The Reagan administration, and any other U.S. administration, certainly has the right and the duty to ensure that war-adaptable advanced technology is kept from the hands of countries that express, by word or deed, enmity for this country.

But manipulating such fears to enact blatant restrictions accomplishes little, other than hampering the efforts by U.S. industry to assert its well-earned prominence as an international leader in trade and the commercial exploitation of technology. It is particularly grating when such a turn of events appears, at least

See RESTRICT page 97

CDLA wary of IBM Credit
Aftermarket a boon for firms seeking used CPUs

By F. Peter Model
Special to CW

Second of two parts

During a meeting of the Computer Dealers & Lessors Association (CDLA) last fall, David A. Finley, president of IBM Credit Corp., told CDLA members Big Blue was not being predatory when it created the credit subsidiary two years earlier.

It proved to be a tough sell, and few CDLA members were in a mood to buy.

Under the John Opel regime, IBM concluded that its long-term growth objectives would be better served with a faster up-front payout on its huge investment in new computers; accordingly, it set up IBM Credit as a wholly owned subsidiary, headed by Finley, to raise new money from outside sources.

IBM, with its AAA public debt rating, had better access to outside financing, and IBM Credit quickly became the sixth-largest computer lessor. By retaining the investment tax credits on new machines, IBM Credit or its leasing partners had access to better interest rates and could offer computer buyers better terms.

Look on the bright side, Finley told the dealers. The more new equipment IBM could sell, the more used equipment would have to flow out of the primary and into the secondary or aftermarket.

Privately, CDLA members found it hard to believe Finley's claim that IBM needs an orderly used market and wants nothing more than to coexist with used equipment dealers and lessors.

Not only are the CDLA dealers put out by reports that IBM Credit will pay bonuses to IBM field sales reps who steer leasing business its way, they're furious about talk of IBM paying them commissions and instituting a quota/goal program.

It's a no-win situation for dealers, perhaps, but not for businessmen who are looking for a good deal in used CPUs and peripherals. However, since most of the IBM Credit leases are for three to four years, the earliest the business community can expect the fallout of most, 1982-vintage computers to take place will be 1986.

Meanwhile, the pipelines are bulging. Over 35% of IBM's 1982 net earnings were

See CREDIT page 97

Worldwide intelligence organization targets U.S. technology, speaker says

By Patricia Keefe
CW Staff

BOSTON — U.S. high-technology companies and equipment are the prime targets of the "largest intelligence organization on earth," but government efforts to combat the Soviets are complicated by the fact that the high-tech industry is overwhelmingly in the civil domain, a ranking federal official insisted here recently.

Even worse, said Michael Marks, senior policy adviser to Undersecretary of State for Security Assistance, Science and Technology William Schneider Jr., there is evidence that Soviet efforts to acquire U.S. technology have become much more systematic and effective over the past 15 years.

"Western technology is the target of a

massive, well-coordinated Soviet acquisition effort, orchestrated through legal and illegal methods and aimed at those technologies which promise the highest military payoff," said Marks, who delivered the keynote address here at the recent Symposium on the Transfer of Technology in the International Marketplace, sponsored by the Federal Bar Association. He cited a number of recent trends in Soviet activities:

■ Increasing priority is being given to dual-use commercial and emerging high technologies, perhaps indicating the military value placed upon them by the Soviet Union as well as their greater vulnerability to intelligence acquisition methods, Marks said.

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Rolm, Northern Telecom to supply NTT PBX systems

SANTA CLARA, Calif. — Nippon Telegraph and Telephone Public Corp. (NTT) recently selected Rolm Corp. and Northern Telecom, Inc. as suppliers of computer-controlled digital voice and data communications systems for NTT direct purchase and resale in the Japanese office automation market.

The contract award, Rolm said, is expected to result in revenues in the $10 million to $20 million range for 1984. The companies competed with established Japanese vendors, including Nippon Electric Co., Ltd.; Hitachi, Ltd.; and Fujitsu, Ltd., according to a spokesman for Rolm.

In early 1982, Rolm had been approved as a vendor of private branch exchanges (PBX) in Japan through an interconnect distributor. Rolm then became the first distributor of digital PBXs in Japan, as NTT had previously restricted the use of the devices.

According to a prepared statement, NTT said it intends to use the Rolm CBX system as the hub of information flow in an office/business environment. The equipment will be installed in medium-size to large offices, requiring 500 to 4,000 or more voice and data extensions, as the central controller for telephones, terminals,

computers and facsimiles, NTT said.

According to Wolfgang Schwartz, vice-president and general manager of the Rolm International Telecommunications division, "With so many large Centrex-type systems existing in Japan today, that replacement market alone is huge."

Cbema says computer imports up

WASHINGTON, D.C. — U.S. imports of computers and business equipment grew four times faster than exports over the last three years, resulting in a steadily declining U.S. positive balance of trade, according to the Computer and Business Equipment Manufacturers Association (Cbema).

Cbema President Vico Henriques blamed the imbalance on the inflated dollar due to high interest rates and claimed the imbalance between the U.S. dollar and the Japanese yen gave Japanese manufacturers a 20% price advantage in the U.S.

The Cbema analysis, based on U.S. Bureau of the Census data, showed that while U.S. exports of computer equipment have risen at an average rate of 9% since 1981, they have been outpaced by imports, which have grown at an average rate of 36.8% since 1981. From 1982 to 1983, the Cbema analysis said, the positive balance of U.S. trade declined 12.6% percent from $6.62 billion to $5.79 billion.

Imports of data processing equipment from Japan reached $1.86 billion last year, an increase of 115% over 1982's $828 million.

Henriques said the downward trend in the U.S. positive balance of trade, a decline of 9% annually since 1981, showed a need for corrective U.S. trade policies. One change the government should make, he said, is to "rethink its proposed policies to place export control restrictions on microcomputers, an area in which the U.S. now is the leading exporter."

'There are days when I think AI can't come too soon.'

Fifth generation still 'creative dream,' says keynoter

By David Glass
CW Staff

BOSTON — Despite some public mistaken beliefs, fifth-generation computer systems at this point in time remain "a creative dream and a vision of what computers can do," the former vice-president of engineering for Digital Equipment Corp. maintained last week.

In his keynote address at the annual Decpo East '84 conference here, C. Gordon Bell, now chief technical officer for Encore Computer Corp., presented his own brief history of the evolution of the computer industry and speculated on future developments in store for fifth-generation systems.

Bell, the chief architect of DEC's PDP-11 minicomputer, joined Encore last July after more than 20 years at DEC.

The development of each new generation of computers, Bell said, has usually involved the convergence of several factors. Some key factors include need (often for national security purposes), a profit motive and technological and scientific innovation. "The interesting things about these generations is they're getting faster all the time," he added.

In Bell's opinion, today's systems are still part of the continued evolution of the third generation of comput-

ers. "We've been on a very long roll since the beginning of the integrated circuit."

He asserted that fifth-generation systems will likely result from continued technological evolution rather than from the "revolutionary" leap forward that some have suggested.

Bell said some discussion about the fifth generation has been nothing more than public relations hoopla. But, he added, "It's also, I think, a creative dream and a vision for what computers can do. And I think the Japanese have done an excellent thing in that regard."

Japanese efforts

Bell said the U.S. faces a considerable challenge from the Japanese in developing new technology. "I think the impressive thing is that they have goals and are focused on what they are doing, and they're getting results."

He suggested some goals the Japanese may have in their push to develop fifth-generation computers. Those benefits, he said, could include improving research techniques, learning knowledge engineering and artificial intelligence-based techniques, developing useful by-products, increasing partnerships and repeating the success they have achieved with semiconductors and microcomputers.

Research in the U.S. on the next generation is very difficult, Bell said. There are still no prototypes developed, and universities and industries are poorly equipped for the research.

Bell summed up his view of the next generation. "I don't believe that revolution is what it will all be about," he said. "I think it will just be a matter of a tremendous amount of slow, very hard work."

Sales up, but shipments might not keep pace: DG chief

By David Myers
CW New York Bureau

NEW YORK — Data General Corp.'s equipment sales have boomed since striking a historical low last June, but Edson D. deCastro, president of the 16-year-old computer maker, recently said shipments may not keep up the pace for the rest of the year.

In his first speech to Wall Street stock analysts in five years, deCastro said DG equipment sales grew 17% from the first quarter of the year to the second, but he added that rising demand is forcing DG to shave its profit margins in order to ship its products on time.

He said DG's highest priority for the rest of 1984 "is meeting customer demand in a timely fashion."

Under questioning by analysts, deCastro said DG lead times had stretched to four months by the end of 1983, but have since been reduced to three months.

To boost manufacturing, deCastro said DG has shifted to heavier purchases of parts made outside the company "at somewhat higher costs." As a result, the computer vendor's profit margins have not ballooned as quickly or as large as its sales figures, according to deCastro. "Our fall from grace was more rapid than our return," the DG president

said, referring to the way the firm's profit margins plummeted to zero in 1982's final quarter.

Noting that economists expect capital spending for high-technology manufacturers to rise through 1986, deCastro said DG expects demand for its three families of computers — the 32-bit MV series of superminis, the 16-bit Eclipse line and the microprocessor-based Desktop Generation of small machines — to grow through the next two years.

However, "the surge in shipments we achieved in the past two quarters may not be indicative of the next few quarters," deCastro warned the audience of stock watchers. "After all is

said and done, this may result in little change in the earnings-per-share expectations for this fiscal year."

DG is now operating at a 7.8% margin of profit and expects to top 10% by year's end, deCastro said. "We might even be able to achieve margins above 15% at some time during the next few years," he said, but added that customer demands would make it unreasonable for the company to operate at that level for very long. DG is also expanding its manufacturing capabilities by spending $85 million on capital improvements this year, deCastro noted.

In reply to a question, deCastro said DG's goal this year is "to gain as much market share as we can." However, he went on to note that "we haven't seen anything to indicate that" DG is gaining share at the expense of its archrival Digital Equipment Corp.

Preceding deCastro to the podium, Robert C. Miller, the company's senior vice-president of the Business Products Group, said sales of the MV series of superminis would account for one-half of DG's sales this year.

Second quarter earnings at DG $12.6 million

WESTBORO, Mass. — Continuing its rebound from a three-year slump, Data General Corp. recently announced that profits for the second quarter ended March 10 more than doubled from the comparable quarter in fiscal year 1983.

Net earnings for the second quarter were $12.6 million, or 49 cents per share, compared with $6 million, or 21 cents per share, one year earlier. Revenues increased in the quarter to $229 million, up from $178.7 million in the second quarter of 1983.

It marked the third consecutive quarter in which sales and profits climbed, following a three-year decline in which annual profits slipped from a high of $54.5 million in 1980 to $23.1 million last year.

For the first two quarters of the current fiscal year, DG produced profits of $21.6 million, compared with $8.1 million in the first six months of last year.

One day after the financial report was issued, DG President Edson D. deCastro told the New York Society of Stock Analysts to expect little change in per-share earnings, because strong demand for products has caused the company to turn to outside parts suppliers, and the higher costs will cut into profit margin improvements.

The revenue growth of 27% experienced in the first six months of the fiscal year, $466 million compared with $366.4 million in the year-earlier period, may not hold up during the second half, deCastro said.

Linear says National Semi suit deterrent to defections

By Peter Bartolik
CW Staff

SANTA CLARA, Calif. — Charged by National Semiconductor Corp. with violating a 1982 settlement in a trade-secrets case, Linear Technologies Corp. recently claimed the charges are aimed at preventing further personnel defections from National Semi to Linear.

National Semi has filed suit in Santa Clara Superior Court here late in March, charging that Linear had violated the terms of a confidential, out-of-court settlement that resolved charges filed against Linear in 1981. In its latest motion, National Semi has asked for punitive damages of $1 million and reimbursement of unspecified damages from alleged misappropriation of trade secrets.

Linear was founded in mid-1981 by Robert Swanson, formerly director of linear operations for National Semi, and an attorney for the young firm charged that the continuing court battle is a result of further employee defections.

Michael Ladra, an attorney with the Palo Alto, Calif., firm of Wilson, Sonsini, Goodrich and Rosati, told Computerworld that the previously confidential 1982 settlement included a prohibition against Linear's hiring additional National Semi employees and allowed National Semi a "one-time look" at Linear's manufacturing processes. Ladra said National Semi and Linear agreed to remove the confidential provision from the settlement as a result of the renewed court battle.

Linda Baker, spokeswoman for National Semi, declined to comment on the specific charges because of the confidentiality of the previous agreement.

She said the company is trying to open the previous agreement through the court process.

While the actual charges filed here recently by National Semi were sealed by court order, Ladra said Linear believes they were filed because Linear hired a regional sales manager away from National Semi. Ladra said the no-hiring ban expired last June, and Herb Wallack, the manager, left National Semi for Linear last December.

Ladra said the previous settlement did not determine the allegations of trade-secrets misappropriation, and

that it provided National Semi with the opportunity to examine Linear's processes, which was accomplished this past December. He said the inspection report cited "41 minor items out of hundreds of different steps," but the inspector was not empowered to determine what, if anything, constituted a trade secret. Linear's position, Ladra said, is that any similarities between processes used by the two companies are a result of technology common to the industry.

Cause of this type rarely go to trial, Ladra said, but, he claimed, this case is a result of a vendetta by National Semi and may not be settled out of court.

Zilog files complaint against Xilinx
Charging misappropriation of trade secrets

By David Gross
CW Staff

SUNNYVALE, Calif. — Zilog, Inc. recently filed a lawsuit charging unfair competition, trade-secrets appropriation and breach of contract against Xilinx, Inc., a company formed in February by three former top Zilog executives.

The complaint, filed April 4 in the California Superior Court in Santa Clara County, centers on a product under development and names as defendants Xilinx of Los Gatos, Calif., and four former Zilog employees.

Three of the defendants are the cofounders of Xilinx: Bernard V. Vonderschmitt, formerly vice-president of Zilog's Components Division, now Xilinx's president; Ross H. Freeman, formerly director of integrated circuit engineering at Zilog, now vice-president of engineering at Xilinx; and James V. Barnett, formerly product line director at Zilog, now vice-president of marketing and sales at Xilinx. Also named as a defendant is

William S. Carter who, in February, left his job as Zilog's director of integrated circuit design to join Xilinx.

The complaint, which primarily concerns an integrated circuit product under development at Xilinx, charges the defendants with "unfair competition, breach of fiduciary duty, wrongfully attempting to appropriate trade secrets and confidential information and breach of contract."

According to David J. Guzeman, Zilog's vice-president of marketing, the complaint centers on his company's claim that it has knowledge of Xilinx's plans to manufacture an integrated circuit product using Zilog trade secrets. He declined to comment on how Zilog knows about the Xilinx product.

Vonderschmitt denied Zilog's charges. "We are not designing and will not manufacture products that will in any way compete or have any relationship to products Zilog is making," he said after the suit was filed.

Vonderschmitt said his firm's product, which he described as an application-specific integrated circuit, uses a different process technology from Zilog's products.

"We interpret this suit primarily as a harassment to keep us from taking [Zilog] employees who are coming to Xilinx," Vonderschmitt said. He claimed that a lot of employees have left Zilog in the past 18 months, but not just to go to Xilinx.

Guzeman denied that the suit is intended to harass Xilinx. He confirmed that the company has lost some employees recently, but he added, "Our turnover rate is commensurate with the industry average of everyone here in Silicon Valley."

Zilog is asking the court for injunctive relief, an undisclosed amount in damages and punitive damages and payment of court costs.

Zilog, formed in 1975, manufactures microprocessors, microcomputers, peripheral support circuits and supermicrocomputer systems.

Apple, Sony will share research

NEW YORK — Apple Computer, Inc. and Sony Corp. recently announced an agreement to share existing research on hard disk technology.

Under the terms of the agreement, Apple Computer will provide Sony with its existing research on hard disk technology, thereby enabling Sony to expand its product line of computer peripheral devices for the OEM market.

Other details of the pact were not disclosed by the two companies.

Both Apple Computer and Sony said, however, that they plan to use the research independently as a basis from which to develop future advanced hard disk drive products.

Sony currently supplies Apple Computer with 3½-in. micro floppy disk drives for use with its Macintosh and Lisa 2 series microcomputers.

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Shift seen from micro software to support charges

By Paul Gromosiewski
CW Staff

DALLAS — As sales of microcomputer software to Fortune 1,000 companies shift from retailers to the vendors' direct sales forces, MIS departments may be saddled with an-nual support charges for packages like Lotus Development Corp.'s Lotus 1-2-3.

That was the message delivered by industry analysts at the Fortune 1,000 Personal Computer Market Forum, a two-day event held here re-cently by Future Computing, Inc., a Richardson, Texas, market research firm. Future Computing estimated that direct sales of microcomputer software will grow from $130 million in 1984 to $800 million in 1988, in-creasing in market share from 14% to 44%.

"The major reason for the shift is price," explained Egil Juliussen, chair-man of Future Computing. "Large companies are used to 40% discounts for volume purchases. They want to

continue to buy products that way."

As volume purchases increase, cost-free support may decrease, ac-cording to analysts. "Support is ex-pensive," Jonathan Hathaway, co-founder of ITM Corp., pointed out. "The burden is placed on vendors to have a full-time technician. It makes sense to charge the end user for sup-port services."

Similar trade-offs

Analysts saw similar trade-offs when mainframe software was intro-duced 20 years ago. "Mainframe soft-ware companies began selling soft-ware without support," said Howard A. Smith, senior vice-president at Management Science America, Inc. (MSA). "Customers would complain that there were problems with the package, and the vendor ended up supporting the package in any case. Not charging for support was a no-win situation for the vendor."

According to Future Computing, few microcomputer software compa-

nies are equipped to handle large companies' needs for volume pur-chases. Volume purchases require di-rect sales staffs, and such staffs for micro software are small. Sizes range from Ashton-Tate's four-member staff to Visicorp's sales force of 20, according to Future Computing. Even Lotus, which Future Computing said generated half of its $54 million in revenues last year from sales to large companies, has only a 12-member di-rect sales staff.

Information Unlimited Software, which benefits from the sales staff of its parent company, Computer Asso-ciates, is an exception, with 100 salesmen directly selling its prod-ucts.

Microcomputer software compa-nies should beef up these staffs dra-matically, according to analysts. "As microcomputer software companies' revenues approach $100 million, di-rect sales become cost-effective," John Doerring, chairman of Publish-ing Technology, Inc. said. "Soon

there will be a significant increase in their direct sales efforts."

MSA, originally a mainframe soft-ware company that already had a di-rect sales staff in place, is teaming with microcomputer software com-panies to supply microcomputer soft-ware to large companies. MSA is a big part of its sales force to market products from 60 microcomputer companies. MSA provides companies with training, a limited number of software packages and support. Choosing software is the customer's responsibility [CW, Feb. 20].

"Mainframe companies like to buy from a central source," MSA's Smith said. "Since we have significant mar-ket penetration in the mainframe world, we will offer customers the convenience of central purchasing and the benefit of support."

But these benefits are expensive. Each customer must commit to an ini-tial purchase of $10,000 worth of software and a yearly purchase of $100,000.

Trilogy's Amdahl to step down as vice-chairman, director in June

CUPERTINO, Calif. — Trilogy, Ltd. announced last week that Gene M. Amdahl is stepping down as vice-chairman and director of the compa-ny effective June 1.

Carlton Amdahl, son of company founder and chairman Dr. Gene Am-dahl, will continue to serve as a con-sultant to the company, a Trilogy

spokesman said.

Prior to the formation of Trilogy, Ltd. Amdahl had served with Magnuson Computer Systems, Inc.

Trilogy also announced that Paul McEnroe, previously director of IBM's Raleigh Development Labora-tory, was appointed vice-president of engineering of Trilogy Systems

Corp., where he will be responsible for all aspects of the firm's computer design, design automation develop-ment, computer center operations and machine technology develop-ment.

Appointed vice-president of com-puter development at Trilogy Sys-tems Corp. was David Anderson, for-

merly vice-president of engineering with Computer Research Corp., a Storage Technology Corp. subsidiary, and previously with IBM.

Anderson will have responsibility for the overall coordination of Trilo-gy's computer design activities, ac-cording to the spokesman for the firm.

HCSI-P.C. Telemart suit settled

LAUREL, Md. — Hammerly Com-puter Services, Inc. (HCSI) settled a $10.9 million breach of contract suit against P.C. Telemart and Larry A. Beckett eight hours before the case was to go to trial last month.

An attorney representing HCSI, a firm specializing in electronic mail and micro data communications soft-ware, said cash and other consider-

ations were part of the settlement.

The suit had been brought Oct. 17 by HCSI and charged Telemart with a breach of contract, racketeering and violation of copyright. HCSI had spent nearly 10 months developing software for Telemart, but had not been paid, the attorney said.

Beckett has reportedly resigned as Telemart's chief executive officer.

U.S., foreign chip makers form trade statistics program

PARIS — Sixty-one semiconductor firms from the U.S., Europe and Japan meeting here recently formed the World Semiconductor Trade Statistics (WSTS) program.

The new program replaces the Semiconductor Trade Statistics Program, which started in the U.S. in 1976 under the auspices of the Semiconductor Industry Association (SIA) and was expanded in 1980 to include European manufacturers.

The program, reputed to be the first worldwide statistical reporting program for any industry, is designed to provide participating firms with timely data on product shipments to all markets in the world.

It will provide each member with a monthly report covering all major markets for 30 product lines, according to Jean Collet, executive vice-president of Thomson International, who was elected to chair the WSTS.

According to the SIA, the agreement, reached with Japanese industry to participate with U.S. and European vendors in a global statistics program, follows an extended study by all parties and is based on a new charter for governance ratified at the recent meeting here.

The WSTS is sponsored by semiconductor trade associations from the respective regions — the SIA for the U.S., the European Electronics Components Association for Europe and the Electronic Industries Association for Japan. The program will continue to be administered by the SIA until an independent administration can be established, according to the SIA spokesman.

McAuto announces subsidiary

ST. LOUIS — McDonnell Douglas Automation Co. (McAuto) has formed a new subsidiary called Cimtek to market products for automated manufacturing.

Cimtek, an acronym for Computer-Integrated Manufacturing Technology, will focus on computer-aided manufacturing, computer-aided engineering, robotics, process planning, production planning and control and data base management.

Manufacturing industry products, chiefly computer-aided design and manufacturing systems, accounted for $46.6 million of McAuto's sales last year. This year, according to McAuto, the company expects that total to reach $100 million.

Last month, McAuto, after concluding an agreement to purchase Tymshare, Inc., announced a decision to form several single-industry businesses, the first being McDonnell Douglas Health Systems, Inc.

McAuto Senior Vice-President John J. Clancy will serve as president of Cimtek.

Monolithic revenues up

SANTA CLARA, Calif. — Monolithic Memories, Inc. recently reported second-quarter revenues of $40.1 million, an 87% gain over the corresponding quarter in 1983.

Profits for the second quarter ended March 18 were $5.5 million, or 29 cents per share, compared to profits of $862,000, or 5 cents per share, during the same period last year. The company said its second-quarter earnings were the largest of any 12-week period in the firm's history.

The company's sales during the first half of fiscal 1984 were $72.2 million, a 90% increase over the comparable period last year.

COMPUTER INDUSTRY

IMPROVEMENTS

Kanza, Inc. announced it has split its hospital division, Kanned Hospital Systems, into two units: the Kanned/EKG business unit and the Kanned/Wang unit. The change is due to its recent agreements with IBM and Wang under which it will sell IBM hardware nationally and sell Wang hardware on the East Coast.

■

Sears Merchandise Group is increasing the number of Sears business systems centers; it plans to open 40 to 50 units this year. The first 10 will open in early April.

■

SATM Midwest, Inc., a subsidiary of ATM Network Management Corp.,

MERGERS AND ACQUISITIONS

IBI International Corp. of Sunnyvale, Calif., has acquired the microsystems and IBM-compatible memory product business of Intersil Systems, Inc., a subsidiary of General Electric Co. The acquisition was made for approximately $13 million.

■

Decad Systems Corp., Washington, D.C., announced the acquisition of Audited, a computer hardware/software firm. Terms of the sale were not available.

■

Santec Corp. of Santa Clara, Calif., has sold the principal assets of Shasta General Systems, Inc. to E-G Interests of Houston. All of Shasta's inventory in hardware, software, software source code, object code and accounts receivable is included in the sale. The contract includes provisions for the new owner to provide service and support to Shasta dealers. Santec ended its dealer distribution activities in early 1984 because the Shasta operation had not achieved its profit goals and had become a drain on the company's resources.

■

Perkin-Elmer Corp. of Chatsworth, Calif., announced the acquisition of International Data Automation, Ltd., London. The international operations of Perkin-Elmer will now be under Perkin-Elmer International. The acquisition is expected to increase the company's penetration of the European marketplace.

■

Dovetail Systems, Inc. of Sunnyvale, Calif., has purchased Software Assistance and market rights to several Software Assistance products. The products will continue to be marketed under the Software Assistance name, but with several major changes.

■

Bechtel Investments, Inc. of San Francisco, a subsidiary of Bechtel Group, Inc., announced it has acquired an undisclosed interest in Data Securities International, Inc. (DSI). DSI provides a business security service for the software industry through a special type of escrow service that is known as proprietary deposit.

and EFI announced an agreement to allow financial institutions throughout Illinois that are serviced by these companies to share automated teller machines.

■

Xonaq has announced that the company headquarters will move to a new 16,000-sq-ft facility in Menlo Park, Calif., at the end of March. Xonaq is a wholly owned subsidiary of Xidex Magnetics, Inc., manufacturers of flexible magnetic media.

■

Wyly Corp. announced that its Open Systems, Inc. microcomputer software subsidiary has been selected to provide the accounting software carried by the Nynex Corp. business computer systems retail stores in the New York and New England area.

The board of directors of the American Electronics Association has authorized formation of a new council in the state of Florida. The new council will be the 14th in the U.S. for the trade association, which serves the electronics and information technology industries.

■

The Ultimate Corp. and Insurnet, Inc. announced an agreement according to which Ultimate will provide Insurnet with more than 1,000 minicomputer systems over the next five years. The value of those systems, associated peripherals and spare parts is estimated to be $46 million. The Ultimate computer systems are also being used by Insurnet to support data communications services between insurance agencies and underwriter companies. Quotron Systems, Inc.

will perform pre- and post-installation maintenance for Ultimate's Digital Equipment Corp.-based systems supplied under the agreement. Honeywell, Inc.'s national maintenance organization will continue to perform maintenance services for the larger Ultimate Honeywell-based computer systems.

■

Theodore G. Paper Jr., IBM vice-president, has been named president and chief executive officer of the joint venture venture by CBS, Inc., IBM Inc. Sears Roebuck & Co. The partnership was formed to develop a commercial videotex service that can be used by people with home and personal computers. The partners also announced the formation of a committee that will oversee operations of the new venture.

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Top priority given to stemming flow of tech to Soviets

BOSTON — The Reagan administration has given top priority to fighting Soviet efforts to increase military power using "the fruits of Western technology," according to Michael Marks, a senior policy adviser on the staff of the Undersecretary of State for Security Assistance, Science and Technology.

Soviet efforts to date have saved them millions in research and development expenses while costing the West billions by forcing an accelerated pace of arms modernization, Marks contended in his keynote address here at the recent Symposium on the Transfer of Technology in the International Marketplace.

In an effort to "stem the flow" of strategic technology to the Soviets, an interagency organization was created in late 1982. Called the Senior Interagency Group (SIG) on the Transfer of Strategic Technology, it was created to bring all government agencies with strategic technology programs or interests together at a policy-making level to coordinate technology transfer activities, he said. The group is committed to

strengthening another agency, the Coordinating Committee for Multiple Strategic Controls (Co-Com) and to drafting a comprehensive U.S. technology transfer policy for presidential decision.

According to Marks, SIG has resulted in a number of initiatives, including:

■ Major bilateral dialogues with key high-tech allies, seeking enhanced government awareness of the technology transfer issue and a strengthening of their national export licensing and enforcement.

■ Raising the intelligence priorities within allied intelligence agencies. "Of the approximately 60 expulsions or arrests of Soviet intelligence officers in 1983 in the industrial democracies, we believe more than half were involved in strategic technology collection," Marks said.

■ Strengthening the U.S. visa mechanism by adopting a new policy of denying and restricting visas when there is evidence that the applicant intends to acquire controlled U.S. technology illegally.

■ Acquisitions of U.S. technology are being stepped up beyond U.S. borders.

■ The role of Eastern European intelligence services has increased steadily since Western sanctions against the Soviet Union were initiated following "aggressive acts" in Afghanistan and Poland.

■ Greater emphasis is being placed upon acquiring Western production technology and equipment, as opposed to end products. "This reflects the Soviet need to become self-sufficient and to increase the efficiency of large-volume production," Marks said. Much of this technology and equipment is subject to export controls, and its acquisition often is accomplished through intelligence-directed trade diversions, he added.

■ Weapon-related acquisitions increasingly are more selective, focusing on critical components and materials necessary to achieve greater performance.

In short, according to Marks, the Soviets are determined and well-financed and are increasing their efforts. Yet because much of the targeted high technology lies within the civil rather than military domain, "the ability of the federal government to control the dissemination of this technology to the Soviet Union is vastly more difficult than controlling the critical technology of a generation ago," Marks said.

However, continuing cooperation between the government and the private sector is one way to fight the Soviet threat, Marks said. "With your goodwill and support, we will be able to manage our own technology losses and bring increasing pressure on our allies to conform their export policies to ours. Without your participation, we will . . . sell the rope to hang ourselves," Marks warned his audience.

CREDIT

from "conversion sales" — rental customers buying on-site equipment, partly with accumulated "rental credits" (up to 50% of list price), at the end of their leases. Many then recoup by selling these goods to CDLA dealers. According to CDLA President Richard A. Forsythe, IBM's conversion business in the U.S. alone grew by 52% last year.

Why IBM is doing what it's doing should be obvious: 25 years after the consent decree that ordered IBM to sell its equipment instead of only leasing it, just 30% of Big Blue's customers are buying.

For growth-minded IBM, that's too slow a return on capital. Hence, OPM — other people's money — will ensure that IBM meets its stated growth projections without having to float another public issue.

In 1983, according to International Data Corp., a Framingham, Mass.-based research firm, the $22.5 billion (value shipped) U.S. computer market showed a 60:40 mix of general-purpose mainframes ($11.8 billion).

Over the next three years, the ratio will flip-flop, with minis and micros dominating. The big-box lessors will just have to adapt to change, said Adolph Monosson of Boston's American Used Computers, Inc.

The CDLA also looks upon depreciation schedules and the investment tax credit as means to olive hardware into the hands of the user and is lobbying Congress for a faster depreciation schedule.

A trickier issue is how close CDLA members should get to the more aggressive IBM. Reportedly, IBM Credit has sought access to CDLA's information network to report computers coming off lease. According to CDLA Executive Director James F. Benton, "The ticklish question is this: Should the members allow their biggest single supplier to get onto their trading network?" Benton did not raise the issue of whether IBM Credit, as sixth-largest lessor, should be invited to join the CDLA.

RESTRICT

partially, to result from bureaucratic infighting.

Just about any commodity sold in international markets has some military value; grain, for instance, is vital to an army's food supply chain, but you won't find the Reagan administration reasserting a grain embargo in this election year.

The danger of restrictions on U.S. enterprise is that they harm the U.S. more than the Soviets; witness the embargo on equipment for the Soviet pipeline. Anything commercially available someplace in the world is obtainable by a government's intervening agents. Trying to make acquisitions more difficult by restricting exports to allies merely serves to turn buyers to more dependable suppliers, in this case, perhaps, enhancing the attractiveness of Japan's vendors.

The conservative philosophy must come to grips with the inherent contradiction between free trade and fear of what the Communists can do with a piece of equipment. Rather than wasting efforts on attempts to block the Soviet bloc from catching up, it would seem much more lucrative to spend those efforts ensuring that the U.S. is always at least one step ahead.

Discrimination suit against IBM dropped

By Bryan Wilkins
CW Washington Bureau

BALTIMORE — A federal judge has thrown out a discrimination suit filed by black managers at IBM's Maryland data processing offices.

U.S. District Court Judge Norman Ramsey said in dismissing the suit on March 20 that there "is absolutely no evidence of any systematic pattern or practice of discrimination within IBM."

The ruling followed a lengthy court battle between the company and the Equal Employment Opportunity Commission (EEOC), which represented the employees.

Approximately 300 black manag-

ers and professional staff employed at nine IBM data processing facilities in the state charged that, during the mid- and late 1970s, they were lagging in promotions and job assignments compared with their white counterparts.

According to the suit, the black employees said that IBM conducted "performance appraisals" that contained racially discriminating evaluation standards.

IBM vigorously denied the charges and submitted statistical evidence to refute the employees' allegations.

In the proceedings before the EEOC, IBM submitted statistics showing that, between 1973 and

1981, the number of black managers in Maryland facilities increased from 60 to 148, or from 6.3% to 12.3% blacks in the work force.

The original class action suit was filed by the EEOC on behalf of the black IBM employees in 1980, after a complaint by one former employee, George Hunter, was expanded to include all blacks working at Maryland facilities.

However, the EEOC lawyer prosecuting the case said last year, as preparations for the trial were under way, that the facts of the case had been limited to the years between 1973 and 1981 for IBM employees in Maryland.

POSITION ANNOUNCEMENTS

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To be your own boss. To call your own shots. To control your own future.

And that's what we're offering you at The Software Place.

Perhaps the finest retail source of business and personal software now expanding in selected markets across the nation, The Software Place is part of a segment that analysts project will more than double in sales each year to $2.9 billion by 1988.

And you can be a part of it as an owner/manager of your own store.

Franchise opportunities are now available to qualified individuals with $90,000 liquid capital and the ability to obtain $110,000 additional financing.

In return, you'll receive one of the most comprehensive franchise programs in the industry. A program that analyzes your market area to determine the most advantageous site for your Software Place store and then goes on to take you through store opening and beyond. Including ongoing technical support that continues throughout the life of the store.

Give us a call. If you meet the requisites outlined in this ad, we'll send you our complete information package, including our videotaped presentation.

We think you'll find that it contains a wealth of information.

THE SOFTWARE PLACE

8701 North MoPac Blvd, Suite 165 Austin, Texas 78759 512 343-0414

COMPUTERWORLD

COMPUTERWORLD's paid circulation climbed to over 125,000 this spring. Folio 400 (Folio Magazine's study of trade publication performance) placed us first in total revenue. As the industry grows, so will COMPUTERWORLD. It will continue to offer the high quality news coverage and editorial content that has attracted its readers. What does that mean to you, our advertisers? Good news... in the form of wide exposures.

The Classified section of this newspaper is laid out in an attractive format and is easy to read. It offers classifications to solve a variety of problems: Position Announcements, Positions Wanted, Time & Services, Real Estate, Publications, Software Packages, Time & Services, Seminars & Conferences.

Our BULLETIN BOARD section is ideal for the smaller companies who want a low-cost way to sell pieces of equipment (hardware or software). The BULLETIN BOARD is laid out as a quick reference for potential buyers who know what they are after.

So, as a nationwide publication, we give you the exposure you want. As a weekly publication, we give you the immediacy your advertisements need.

A number of special issues of COMPUTERWORLD are scheduled to run in 1984. Each of these issues will feature one aspect of the computer industry and give our advertisers a chance to reach a more select audience. These are the topics the issues will cover:

- April 30 - Mining Big Business
- May 28 - Software Productivity
- June 25 - Graphics Systems
- July 2, 9, 16 - NCC Issues
- August 27 - Banks & Business Systems
- September 24 - Data Base Management Systems
- October 29 - Protecting the Corporate Information Resource
- November 26 - Data Communications Terminals

COMPUTERWORLD publishes every Monday with an ad deadline of 10 days prior to each issue date. You may send in copy to be placed or camera-ready material (voice or negative) via the mail. We provide telecopier service and will also take ads over the phone.

Information concerning classified advertising rates, color costs, ad sizes, mechanical specifications along with more detailed information on the special issues is contained in the 1984 Rate Card #19 and Media Kit.

Our mailing address is COMPUTERWORLD, Classified Advertising, 375 Cochituate Road, Box 880, Framingham, MA 01701. Or call for more information at 1-800-343-6474 or, in Massachusetts, (617) 879-0700.

The Bulletin Board

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CW COMMUNICATIONS/INC.

Computerworld Stock Trading Summary